CHEMISTRY

BOOKS - S DINESH & CO CHEMISTRY (HINGLISH)

THE CARBON FAMILY

Mcqs

1. Element of group 14 (IV A) have outer electronic configuration of

A. ns^2np^2

B. ns^2

C. ns^2np^6

D. ns^2np^4

Answer: A

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2. The metallic character of element of group 14

A. has no significance

B. does not change gradully

C. increases from top to bottom

D. decreases from top to bottom

Answer: C

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3. The electronic configuration of Si is

A. $[He]2s^2 2p^2$

B. $[Ar]3d^{10}4s^2 4p^2$

C. $[Ne]3s^2 3p^2$

D. $[Kr]4d^{10}5s^2 5p^2$

Answer: C

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4. The type of bonding found in divalent compounds of group 14 element is :

A. Ionic

B. Covalent

C. Metallic

D. Hydrogen

Answer: A

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5. The shape of tetrahalides of group 14 element is

A. Square planar

B. Trigonal bipyramid

C. Octahedral

D. Tetrahedral

Answer: D

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6. The first ionisation energy of silicon is lower than that of

A. Aluminium

B. carbon

C. potassium

D. calcium

Answer: B

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7. Among the elements of group 14 the one having highest tendency to show stable +2 oxidation state is

A. Carbon

B. Plumbum

C. Germanium

D. Silicon

Answer: B

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8. Which oxidation state is not shown by carbon in its compounds?

A. -4

B. 4

C. 1

D. 0

Answer: C

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9. The stability of $+2$ oxidation state of Pb can be explained on the basis of

A. electronic configuration

B. inert pair effect

C. resonance

D. small size of Pb^{2+} ion

Answer: B

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10. A compound in which the oxidation number of carbon is zero is

A. CO_2

B. C_2H_6O

C. $C_6H_{12}O_6$

D. none the above

Answer: C

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11. Unlike the elements of group 1 and group 2. The elements of group 14, do not show close resemblance in their properties because.

A. They have different valence shell configurations

B. The Penultimate shell of Group 14 elemants have different configurations

C. All the elements of Group 14 contain d-electrons

D. None of the above

Answer: B

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12. Which of the following statements is false with respect to group 14 elements. ?

A. The stability of +4 oxidation state decreases as we move down the group

B. The +4 oxidation state is more common in carbon and silicon

C. Pb^{4+} is more stable than Pb^{2+} ions.

D. The stability of +2 oxidation state increases on moving down the group due to inert pair effect.

Answer: C

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13. Which of the following elements occur in free state 3 ?

A. Si

B. Ge

C. Sn

D. C

Answer: D

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14. Amongst the elements of group 14 the oxidising power of the tetravalent species increases in the order

A. $Ge < Pb < Sn$

B. $Ge < Sn < Pb$

C. $Pb < Ge < Sn$

D. None of the above

Answer: B

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15. Amongst the elements of group 14 the reducing power of the divalent species decreases in the order .

A. GegtSngtPb

B. SngtGegtPb

C. PbgtSngtGe

D. SngtPbgtGe

Answer: A

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16. Catenation is

A. formation of cations

B. deposition of cations

C. formation of long chains of similar atom

D. formation of covalent bonds

Answer: C

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17. Which one of the following elements does not belong to group 14 of the periodic table ?

A. Ga

B. Ge

C. Si

D. Sn

Answer: A

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18. Which of the following of group 14 has the highest melting and boiling point ?

A. Pb

B. Si

C. Sn

D. C

Answer: D

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19. The tendency towards catenation among group 14 elements down the group

A. increases

B. decreases

C. ramains same

D. unpredictable

Answer: B

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20. which of the following group 14 elements shows maximum tendency towards catenation ?

A. Lead

B. Germanium

C. Silicon

D. carbon

Answer: D

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21. Which of the following does not exhibit allotropy ?

A. Tin

B. Carbon

C. Plumbum

D. Silicon

Answer: C

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22. Carbon atoms in diamond show

A. sp^2 hybridization

B. sp^3d hybridization

C. sp^3 hybridization

D. dsp^2 hybridization

Answer: C

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23. Which of the following bonds the has highest bond energy ?

A. C-C

B. Si-Si

C. Ge-Ge

D. S-S

Answer: A

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24. Carbon has no tendency to form complex compound because of

A. its small size

B. the availability of vacant d-orbitals

C. non availability of vacant d - orbitals

D. no tendency to form of carbon

Answer: C

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25. Which of the following structure is similar to graphite e?

A. B

B. BN

C. B_4C

D. B_2H_6

Answer: B

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26. Diamond and graphite are the

A. isotopic forms of carbon

B. allotropic forms of carbon

C. amorphous forms of carbon

D. isometric forms of corbon

Answer: B

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27. Which of the following elements exhibit maximum number of allotropes ?

A. Carbon

B. Silicon

C. Tin

D. Lead

Answer: C

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28. which of the following statements is not true for carbon ?

A. It forms compouds with multiple bonds

B. Its ionisation energy is very high

C. It undergoes catenation

D. it shows inert pair effect

Answer: D

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29. Carbon differs from the rest of the elements of group 14 because of :

A. Smaller size and high electronegativity

B. catenation

C. non availability of $d-$ orbitals

D. All (A), (B) and (C)

Answer: D

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30. Colloidal solution of graphite is

A. Oil dag

B. Aqua dag

C. Lamp black

D. Anthracite

Answer: B

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31. Graphite is

A. harder than diamond

B. is a bad conductor of electricity

C. used as a lubricant

D. an amorphous allotropic form of carbon

Answer: C

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32. Thermodynamically the most stable form of carbon is

A. Diamond

B. Graphite

C. Anthracite

D. All are equally stable

Answer: B

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33. The carbon atoms in graphite are

A. sp^2 hybridization

B. sp^3d hybridization

C. sp hybridization

D. sp^2d hybridization

Answer: A

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34. Most impure form of carbon is

A. Lamp black

B. Graphite

C. Wood charcoal

D. Anthracite

Answer: C

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35. Which has two dimensional sheet like structure

A. Coal

B. Coke

C. Diamond

D. Graphite

Answer: D

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36. The nature of chemical bonding in graphite is

A. Covaleant

B. Ionic

C. Co- ordinate

D. Metallic

Answer: A

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37. The important ores of tin and lead are

A. Stibnite and Galena

B. Cassiterite and stibnite

C. Cassiterite and galena

D. Calamine and Cyrolite

Answer: C

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38. The nature of bonds compound of C and Si is

A. Electrovalent

B. Covalent

C. Metallic

D. Convalent and electrovalent

Answer: C

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39. Which of the following is used in making printer's ink, shoe polish , black varnish and paint ?

A. Lamp Black

B. Bone Black

C. Carbon Black

D. None of these

Answer: A

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40. Density is highest for

A. Pb

B. C

C. Si

D. Ge

Answer: A

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41. crystalline silicon was obtained by

A. Berzelius

B. Wohler

C. Winkler

D. Deville

Answer: D

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42. Which is not correct ?

A. Lead is poor conductor of electricity

B. $PbCl_4$ forms stable double salt with NH_4Cl

C. Lead is malleable and ductile

D. $SnCl_2$ is a solid.

Answer: C

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43. The non existence of $PbI_4 / PbBr_4$ is due to-

A. Small size of Pb^{4+} and larger size of Br^- / I^- ions

B. Highly oxidising nature of Pb^{4+} ions

C. Highly reducing nature of I^- / Br^- ions

D. Both (B) and (C)

Answer: D

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44. Which of the following true acid anhydride?

A. Al_2O_3

B. CO

C. CO_2

D. CaO

Answer: C

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45. From the oxides those given below which is neutral in character

A. PbO

B. CO

C. SiO

D. GeO_2

Answer: B

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46. Silicon hydrides are called

A. Silane

B. Silicon hydrogen compound

C. Hydrogen silicides

D. silicones

Answer: A

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47. The most commonly used reducing agent is

A. $AlCl_3$

B. $PbCl_2$

C. $SnCl_4$

D. $SnCl_2$

Answer: D

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48. The correct order of decreasing ionic character of PbF_2, $PbCl_2$, $PbBr_2$ and PbI_2 are

A. $PbF_2 > PbCl_2 > PbBr_2 > PbI_2$

B. $PbF_2 > PbBr_2 > PbCl_2 > PbI_2$

C. $PbF_2 < PbCl_2 < PbBr_2 < PbI_2$

D. $PbF_2 < PbCl_2 > PbBr_2 > PbI_2$

Answer: A

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49. Tin reacts with concentrated HNO_3 and gives:

A. $Sn(NO_3)_2$

B. β-stamic acid

C. $Sn(NO_3)_4$

D. Tin stone

Answer: B

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50. When $SnCl_2$ is treated with $HgCl_2$, the products formed are

A. $Sn + HgCl_4$

B. $Sn + Cl_2 + Hg_2Cl_2$

C. $SnCl_4$ and Hg_2Cl_2

D. none of these

Answer: C

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51. Which of the following is used as mordant for dyeing ?

A. $2PbCO_3.\ Pb(OH)_2$

B. $SnCl_4.5H_2O$

C. graphite

D. carbogen

Answer: B

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52. When formic acid or oxalic acid is treated with conc. H_2SO_4 , the gas evolved is

A. H_2S

B. CO

C. SO_2

D. CO_2

Answer: B

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53. Which of the following statements is correct ?

A. BF_3 is stronger lewis acid than BCl_3

B. $AlCl_3$ is pyramidal in shape

C. IE of lead is slightly higher than Sn although it lies below Sn in the group

D. Inert pair effect decreases down the group

Answer: C

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54. Halide that is not hydrolysed

A. $SiCl_4$

B. CCl_4

C. SiF_6

D. $PbCl_4$

Answer: B

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55. Which of the following statements are not true about trimethyl and trisilyl amine ?

A. Triemthyl amine has a pyramidal shpae while trisilyl amine has a planar shape

B. Nitrogen atom in both trimethyl and trisilyl amines is in a state of sp^3 and sp^2 hybridization respectively

C. Lone pair of electrons present in p-orbitals of nitrogen in trisilyl amine form $p\pi - d\pi$ bond with the vacant d-orbitals of silicon atom.

D. Trisilyl amine is more basic in comparision to trimethyl amine because of the availability of the lone pair of electrons on nitrogen atom.

Answer: D

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56. Brown SnO is

A. an acidic oxide

B. basic oxide

C. neutral oxide

D. amphoteric oxide

Answer: B

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57. The tetrahalides of group 14 elements except that of carbon are

A. strong lewins bases

B. strong oxidising agents

C. Strong lewis acids

D. none of these

Answer: C

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58. Which one of the following molecules is linear ?

A. CO_2

B. H_2O

C. NO_2

D. SO_2

Answer: A

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59. An allotrope X of group 14 element on oxidation with conc. HNO_3 gives graphite acid. The X is

A. Diamond

B. β-sn

C. α-sn

D. graphite

Answer: D

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60. Carbon monoxide is not

A. a reducing agent

B. a good oxidising agent

C. neutral to litums

D. posisonous in nature

Answer: B

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61. Dry ice is

A. solid NH_3

B. solid SO_2

C. Solid CO_2

D. dry CO_2 gas

Answer: C

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62. carbon in carbon dioxide is

A. sp hybridization

B. sp^2 hybridization

C. sp^3 hybridization

D. d^2sp^3 hybridised.

Answer: A

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63. Carbon monoxide is absorbed by

A. Ammonical cuprous chloride

B. pyrogallol

C. chloroform

D. CCl_4

Answer: A

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64. Lead is extracted by

A. Reduction of Pbs with C

B. Electrolysis of PbS

C. Oxidation of PbS to PbO follwed reduction with carbon

D. Reduction of PbS with Ag

Answer: C

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65. Which glass has the highest percentage of lead ?

A. Soda glass

B. Jena glass

C. Flint glass

D. Pyrex glass

Answer: C

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66. Glass is soluble in

A. $HClO_4$

B. aqua regia

C. HF

D. H_2SO_4

Answer: C

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67. Which out of the following is called as lead sesquioxides ?

A. PbO

B. Pb_2O_3

C. PbO_2

D. Pb_3O_2

Answer: B

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68. Which out of the following oxides of lead finds use in lead accumulator ?

A. PbO

B. Pb_2O_3

C. Pb_3O_4

D. PbO_2

Answer: D

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69. Which out of the following is methamide ion ?

A. C^{2-}

B. C_2^{2-}

C. C_3^{4-}

D. C^{4-}

Answer: D

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70. Softening of lead means:

A. Conversion of lead to PbO

B. Washing lead with HNO_3 followed by a dil. Alkali solution

C. Conversion of lead of Pb_3O_4

D. Removal of impurities of Cu,Ag , Fe from lead.

Answer: D

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71. Which out of the following is called sugar of lead ?

A. $Pb(NO_3)_2$

B. $PbCl_2$

C. $PbCO_3.\ Pb(OH)_2$

D. $Pb(CH_3COO)_2.$

Answer: D

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72. An alkyl halide reacts with a group 14 element, 'Y' at 570 K with Cu as a catalyst producing a dialkyl chloro compound 'Z'. The compound 'Z' on hydrolysis gives another compound which is a strong water repellent and quite inert chemically. The dioxide of 'Y' is acidic in nature. The alkyl halide can also be obtained from methan after mono-substitution. The comp 'Y' and 'Z' are

A. $C, C_2H_4Cl_2$

B. $Sn, (CH_3)_2SnCl_2$

C. $Si, (C_2H_5)_2SiCl_2$

D. $Si, (CH_3)_2SiCl_2$

Answer: D

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73. Lead dissolve most readily in

A. Acetic acid

B. Nitric acid

C. Sulphuric acid

D. Hydrochloric acid

Answer: B

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74. Which reaction represents plumbo solvency ?

A. $Pb + 2HCl \rightarrow PbCl_2 + H_2$

B. $Pb + O_2 \rightarrow 2PbO$

C. $2PbS + 3O_2 \rightarrow 2PbSO_4 + 2SO_2$

D. $Pb + O_2 + 2H_2O \rightarrow 2Pb(OH)_2$

Answer: D

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75. The hybrid state of silicon in silicates is

A. sp^3 hybridised

B. sp^2 hybridization

C. sp hybridised

D. dsp^2 hybridization

Answer: A

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76. In which of the following there exists a $p\pi - p\pi$ bonding

A. Diamond

B. Graphite

C. Dimethyl amine

D. Trisilylamine

Answer: D

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77. When steam is passed through red hot coke:

A. $CO + H_2$

B. $CO_2 + H_2$

C. $H_2 + O_2$+Stream

D. none of these

Answer: A

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78. $SiH_4 + NaOH + H_2O \rightarrow X + 3H_2$

X in the above reaction is

A. H_2SiO_3

B. SiH_3Ona

C. Na_2SiO_3

D. SiO_2

Answer: C

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79. Which of the following is not a compound ?

A. Black lead

B. White lead

C. Red lead

D. None

Answer: A

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80. which of the following do not react with halogens directly ?

A. Si

B. Sn

C. C

D. Pb

Answer: C

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81. Which out of the following is the correct composition of Crooke's glass?

A. $Na_2CO_3.\ CaCO_3.\ SiO_2$

B. $K_2CO_3.\ CaCO_3.\ SiO_2$

C. $Na_2CO_3.\ K_2CO_3.\ PbCO_3.\ SiO_2$

D. $K_2CO_3.\ PbCO_3.\ CeO_2$. Sand.

Answer: D

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82. A complex ion will be formed when HCl will react will

A. $SiCl_4$

B. CCl_4

C. SiO_2

D. $CHCl_3$

Answer: A

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83. Which one of the following gases, if present in the atmosphere darkens the surface painted by white lead ?

A. SO_2

B. H_2S

C. NH_3

D. CO_2

Answer: B

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84. One can obtained a silica garden if

A. crystales of coloured are added to a strong solution of sodium silicate

B. sodium silicate solution is treated with a base

C. SiF4 is hydrolysed

D. Silicon salts are grown in a garden

Answer: A

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85. A gas which burns with blue flame is

A. CO

B. O_2

C. N_2

D. CO_2

Answer: A

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86. Which metal is an important constituent of transistor ?

A. Ag

B. Os

C. Ra

D. Ge

Answer: D

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87. Coal gas may be called a mixture of

A. CH_4 and C_2H_4

B. H_2 and CH_4

C. H_2 and C_2H_4

D. CO and CO_2.

Answer: B

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88. Which of the following compound has peroxide linkage ?

A. Pb_2O_3

B. SiO_2

C. PbO_2

D. CO_2

Answer: C

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89. Tin cry is due to

A. action of water and moisture on tin

B. soft nature of tin

C. crystals rubbing against each other

D. None of the above

Answer: C

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90. A polymeric, tetrahdral three dimensional network solid (X) on reduction with C gives a all diatomic molecules. This gas netural in

nature and is isoelectronic with nitrogen. X is also obtained from a group 14 element after reaction with O_2. X and Y are

A. SnO_2, CO

B. SiO_2, CO

C. GeO_2, CO

D. SiO_2, CO_2

Answer: B

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91. Polysilicates are the silicates in which two tetrahedral units are linked at

A. One point

B. Two points

C. Three points

D. None

Answer: A

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92. CO forms a volatile compound with

A. Ni

B. Cu

C. Al

D. Si

Answer: A

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93. Poisonous gas present in the exhust fumes of car is

A. CO

B. CO_2

C. C_2H_2

D. C_2H_6.

Answer: A

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94. CO is poisonous gas. Antidote for CO poisoning is

A. Carborundum

B. Carborgen

C. Carbonic acid

D. Pure oxygen

Answer: B

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95. Percentage of lead in lead pencil is

A. 0.316

B. 0.84

C. 0.2

D. Zero

Answer: D

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96. Which is not the property of diamond?

A. It is insoluble in all solvents

B. it is oxidised with a mixture of $K_2Cr_2O_7$ and H_2SO_4 and

$200^\circ C$

C. It is purest from of carbon

D. It is allotrope of graphite

Answer: B

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97. Which of the following gases are needed/absorbed by plants for their growth ?

A. N_2

B. CO_2

C. CO

D. O_2

Answer: B

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98. Element commonly used in modern semiconductor devices is

A. Si

B. C

C. Sn

D. Pb

Answer: A

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99. Agate, a very hard substances used for making knife edges etc. in blances is a form of

A. sand stone

B. soap stone

C. flint

D. quartz

Answer: D

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100. SiO_2 is a/an

A. acidic oxide

B. basic oxide

C. neutral oxide

D. amphoteric oxide

Answer: A

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101. Small piece of a crystalline substance which helps an electronic watch to run accurately is that of

A. Silicon

B. Silicone

C. Silica

D. quartz

Answer: D

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102. Which of the following elements reacts with silicon at room temperature

A. Oxygen

B. Chlorine

C. Fluourine

D. Nitrogen

Answer: C

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103. The basic structural unit in silicates is

A. SiO_2 units

B. SiO_3^{2-} units

C. SiO_4^{4-} ion

D. SiO_6^{6-} units

Answer: C

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104. The geometry of SiO_4^{4-} ion is

A. Tetrahedral

B. Square Planar

C. Orthosilicates

D. Planar triangular

Answer: A

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105. The silicates which contain discrete anions are

A. Sheet silicates

B. Orthosilicates

C. Three dimensional silicates

D. None of these

Answer: B

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106. the silicate which contain extended anions are

A. Pyrosilicates

B. three dimensional silicates

C. Chainsilicates

D. Cyclicsilicates

Answer: C

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107. The silicates which do not contain discrete anions are

A. Orthosilicates

B. Pyrosilicates

C. Cyclilicates

D. Sheetsilicates

Answer: D

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108. Carborundum is the commercial name of

A. Al_2O_3

B. SiC

C. SiO_2

D. HPO_3

Answer: B

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109. Quartz is a crystalline variety (purest form) of

A. Silicon

B. Silicon dioxide or silica

C. Silicon carbide

D. Sodium silicates

Answer: B

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110. Silicon carbide is used as

A. a solvent

B. a dehydrating agent

C. an abrasive

D. catalyst

Answer: C

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111. A silicate used in talcum powder

A. consists of planar sheets which can slip over another

B. is known as talc

C. is a pure magnesium silicate of the form $3MgO.4SiO_2.\ H_2O$

D. All of these

Answer: D

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112. Pure silicon is obtained by the reduction of very pure $SiCl_4$ with

A. C

B. Al

C. H2

D. Na

Answer: D

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113. Silicon is an important constituent of

A. Chloropyll

B. Haemolobin

C. Rocks

D. Amalgams

Answer: C

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114. Which glass has the highest percentage of lead ?

A. Soda glass

B. Flint glass

C. Jena glass

D. Pyrex glass

Answer: B

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115. The glass with smallest coefficient of expansion of

A. Soft glass

B. Soda- lime glass

C. Jena glass

D. Pyrex glass

Answer: D

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116. The colour producing substances used to impart green colour to glass is

A. Cu_2O

B. CdS

C. MnO_2

D. Cr_2O_3.

Answer: D

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117. Ordinary glass is

A. Sodium silicate

B. Calcium silicate

C. Calcium and sodium Silicates

D. Copper silicate

Answer: C

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118. Which of the following is not a constituent of soda glass ?

A. Calcium silicate

B. Sodium Silicate

C. Silicate

D. Silicic acid

Answer: D

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119. Ultraviolet rays can be checked by

A. Flint glass

B. Crooke's glass

C. Soda glass

D. Pyrex glass

Answer: B

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120. Which variety of glass is used for manufactured of optical glasses?

A. Sodium glass

B. Flint glass

C. Ground glass

D. quartz

Answer: B

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121. Which of the following compound of tin is a reducing agent

A. $SnCl_2$

B. $SnCl_4$

C. SnO

D. None

Answer: A

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122. When tin is treated with concentrated nitric acid

A. It is converted into stannous nitrate

B. It is coverted into stannic nitrate

C. It is converted into metestannic acid

D. It becomes passive

Answer: C

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123. Roasted tin-stone ore after washing with water is known as

A. Block tin

B. Black tin

C. White tin

D. Granulated tin

Answer: B

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124. Block tin is not purified by

A. Liquation

B. Poling

C. Electro refining

D. Fractional distillation

Answer: D

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125. The chief ore of tin is

A. Galena

B. Cerrusite

C. Tin stone

D. Anglesite

Answer: C

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126. Which of the following statements is correct ?

A. Both $SnCl_4$ and $SnBr_4$ are coloured

B. All $SnCl_4$, $SnBr_4$ and SnI_4 are coloured

C. only $SnBr_4$ is coloured

D. OnlySnI_4 is coloured.

Answer: D

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127. Tin plague means

A. Conversion of stannous salt into stannic salt

B. Coversion of white tin to grey tin

C. Tin plating

D. Emissoin of sound while bebding a tin plate

Answer: B

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128. Lead pipes are not safe for transportation of drinking water because

A. Lead forms lead oxide with water

B. water containing dissolved air reacts slowly with lead forming respective hydroxide

C. they are corroded by air

D. they are slowly covered with the layer of lead carbonate

Answer: B

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129. Which compound of lead was used as anti-knocking agent ?

A. Lead tetra-acetate

B. Basifc lead sulphate

C. Tetraethyl lead

D. Sublimed white lead

Answer: C

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130. Anglesite is an ore of

A. Tin

B. Lead

C. Zinc

D. Mercury

Answer: B

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131. Lead can be cut with knife and scratched with finger nail. Which property depicts this quality in lead ?

A. Lead is very hard

B. Lead is easily corrobed by water

C. Lead is soft

D. None of the above

Answer: C

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132. Which of the following is used as red pigment ?

A. Pb_3O_4

B. PbO

C. $PbCrO_4$

D. $Pb(OH)_2$

Answer: A

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133. Carbonate ore of lead is

A. Casseterite

B. Galena

C. Anglesite

D. Cerrusite

Answer: D

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134. A red crystalline solid A reacts with nitric acid to form a chocolate-brown solid B insoluble in water. Both A and B reacts with HCl to form $PbCl_2$. A and B respectively are

A. PbO, PbO_2

B. Pb_3O_4, PbO_2

C. PbO_2, Pb_3O

D. PbO_2, PbO

Answer: B

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135. The formula for chrome yellow is

A. K_2CrO_4

B. $PbCrO_4$

C. Na_2CrO_4

D. $K_2Cr_2O_7$

Answer: B

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136. The number of p-electrons in the valence shell of element of group 14 is

A. Two

B. Four

C. Three

D. Five

Answer: A

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137. In which of the following compounds carbon shows an oxidation state of -2 ?

A. CH_3OH

B. CH_2Cl_2

C. $C_{12}H_{22}O_{11}$

D. CO

Answer: A

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138. Among the elements of group 14, the element having highest and that with lowest melting point are respectively.

A. C,Pb

B. C,Sn

C. C, Ge

D. C,Si

Answer: B

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139. Which oxide is weakly basic and at the same time a powerful oxidising agent ?

A. SiO_2

B. PbO_2

C. CO_2

D. SnO_2

Answer: B

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140. Graphite is similar to which compound boron ?

A. B_2O_3

B. BN

C. H_3BO_3

D. B_4C

Answer: B

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141. Which tetrahalide of group 14 elements is not lewis acid ?

A. $PbCl_4$

B. $SiCl_4$

C. CCl_4

D. All of these

Answer: A

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142. What is correct order of decreasing co-valent character among $PbCl_2(I), PbF_2(II), PbI_2(III), PbBr_2(IV)$

A. III gt IV gt I gt II

B. IgtIIgtIIIgtIV

C. IIIgtIgtIVgtII

D. IIIgtIIgtIVgtI

Answer: A

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143. Which oxide of carbon is formed when malonic acid is warmed with P_2O_5 ?

A. Mixture of CO_2 and CO

B. C_3O_2

C. C_3O_4

D. only CO_2

Answer: B

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144. On reducing with coke in electrical furnace , SiO_2 gives

A. CO_2 and Si

B. CO and Si

C. CI and SiC

D. SiI and CO

Answer: C

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145. Elemental silicon has crystals structural similar to

A. Diamond

B. Graphite

C. SiO_2

D. P_4.

Answer: A

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146. Which of the following molecules invovles the formation of $d\pi - p\pi$ bonding ?

A. Trimethylamine

B. Carbon monoxide

C. trisilylamine

D. C_3O_2

Answer: C

View Text Solution

147. The hybrid state of silicon in silicates is

A. sp^3d

B. sp^3

C. sp^2

D. dsp^2

Answer: B

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Rq

1. Thomas slag is

A. $Ca_3(PO_4)_2$

B. $CaSiO_3$

C. mixture of (A) and (B)

D. $FeSiO_3$

Answer: C

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2. The substance used as a smoke sereen in warfare is .

A. $SiCl_4$

B. PH_3

C. PCl_5

D. Acetylene

Answer: A

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3. Litharge is not commonly used in

A. The manufacture of special glasses

B. Glazing pottery

C. Preparing paints

D. Lead storge batteries

Answer: D

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4. Galena is an ore of

A. Gallium

B. Lead

C. Tin

D. Gernanium

Answer: B

Watch Video Solution

5. The acid used In lead storage cells is

A. Phosphoric acid

B. Nitric acid

C. Sulphuric acid

D. Hydrochloric acid

Answer: C

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6. When excess of $SnCl_2$ is added to a solution of $HgCl_2$, a white precipitate turning to gray is obtained. The grey colour is due to

A. Hg_2Cl_2

B. $SnCl_4$

C. Sn

D. Hg.

Answer: D

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7. Which of the following is not used as a pigment in paints ?

A. lead dioxide

B. White lead

C. lead chromate

D. Pb_3O_4

Answer: A

View Text Solution

8. Halide that is not hydrolysed

A. $SiCl_4$

B. SiF_4

C. CCl_4

D. $PbCl_4$

Answer: C

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9. Glass is a

A. Liquid

B. Solid

C. Supercoled organic

D. Transprarent organic polymer

Answer: C

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10. The principal constituent of pyrex glass is

A. Zn

B. B

C. Pb

D. Cl

Answer: B

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11. Glass react with

A. Oleum

B. HF

C. HNO_3

D. $K_2Cr_2O_7$

Answer: B

View Text Solution

12. White lead is

A. Na_2CO_3

B. Pb_3O_4

C. $Pb(OH)_2.2PbCO_3$

D. PbO

Answer: C

Watch Video Solution

13. The composition of the common glass is

A. $Na_2O.\ CaO.6SiO_2$

B. $Na_2O.\ Al_2O_3.2SiO_3$

C. $CaO.\ Al_2O_3.\ SiO_2$

D. $Na_2O.\ CaO.\ Al_2O_3.6SiO_2$

Answer: A

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14. Which of the following has no tin in its composition ?

A. Solder

B. Bronze

C. Brass

D. Tin stone

Answer: C

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15. The sequence of acidic character is

A. $SO_2 > CO_2 > CO > N_2O_5$

B. $SO_2 > N_2O_5 > CO > CO_2$

C. $N_2O_5 > SO_2 > CO > CO_2$

D. $N_2O_5 > SO_2 > CO_2 > CO$

Answer: D

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16. Na^+, Mg^{2+}, Al^{3+}, and Si^{4+} are isoelectronic ions. Their ionic size will follow the order

A. $Na^+ > Mg^{2+} > Al^{3+} < Si^{+4}$

B. $Na^+ > Mg^{2+} < Al^{3+} > Si^{+4}$

C. $Na^+ > Mg^{2+} > Al^{3+} GtSi^{+4}$

D. $Na^+ > Mg^{2+} > Al^{3+} < Si^{+4}$

Answer: C

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17. White lead is

A. Basic lead acetate

B. Acidic lead carbonate

C. Basic lead carbonate

D. Basic lead hydroxide

Answer: C

Watch Video Solution

18. Composition of glass is

A. silica, lime, NaCl

B. Silica,lime, Na_2CO_3

C. Silica,NaCl

D. lime, Na_2CO_3

Answer: B

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19. $PbCl_4$ exists but $PbBr_4$ and PbI_4 do not because of

A. Inability of bromine and iodine of oxidise Pb^{2+} to Pb^{4+}

B. Br^- and I^- ions are bigger in size

C. more electropositive nature of bromine and iodine

D. Chlorine is a gas

Answer: A

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20. When oxalic acid is dehydrated by conc. H_2SO_4 then it forms

A. $C + CO_2$

B. CO

C. CO_2

D. $CO + CO_2$

Answer: D

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21. Which of the following shows bonds in silicones ?

A. Si-Si -Si-Si

B. Si-C-Si-o-Si

C. Si-C-Si-C-Si

D. $-Si-O-Si-O-Si$

Answer: D

View Text Solution

22. Glass reacts with HF to produces

A. Na_3AlF_6

B. H_2SiF_6

C. H_2SiO_3

D. SiF_4

Answer: B

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23. Which of the following statement is correct with respect to the property of elements with an increase in atomic number in the carbon family (group 14)?

A. Their metallic character decreases

B. The stability of +2 oxidation state inreases

C. Their ionization energy increases

D. Their atomic size decreases

Answer: B

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24. Which one of the following has maximum bond dissociation energy ?

A. O - O

B. C -C

C. N -N

D. F -F

Answer: B

View Text Solution

25. White lead is

A. $PbCO_3$

B. $PbCO_3PbO$

C. $Pb(OH)_2.2PbCO_3$

D. $PbSO_4PbO$

Answer: C

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26. The oxide which cannot act as reducing agent is

A. SO_2

B. NO_2

C. CO_2

D. ClO_2

Answer: C

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27. A solid element (symbol Y) conducts electricity and forms two chlorides YCln (a colourless volatile liquid) and $YC\ln-2$ (a colourless solid). To which one of the following groups of the periodic table does Y belong ?

A. 13

B. 14

C. 15

D. 16

Answer: B

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28. Red lead is

A. PbO

B. Pb_3O_4

C. PbO_2

D. Pb_4O_3

Answer: B

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29. Which of the following bonds has the most polar character ?

A. $C - O$

B. $C -$

C. $C - S$

D. $C - F$

Answer: D

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30. The structure and hybridization of $Si(CH_3)_4$ is

A. bent, sp

B. trigonal, sp^2

C. octahedral , d^2sp^3

D. tetrahedral, sp^3

Answer: D

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31. The ion that cannot ne precipitated by both HCl and H_2S is

A. Pb^{2+}

B. Fe^{3+}

C. Zn^{2+}

D. Cu^{2+}

Answer: A

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32. Which of the following is most dense

A. Fe

B. Cu

C. B

D. Pb

Answer: D

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33. Sillicon is an important constituent of

A. Rocks

B. Minerals

C. Alloys

D. Vegetables

Answer: A

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34. In the manufacture of cement which of the following is used ?

A. Clay and silica

B. Lime stone and silica

C. Lime stone and clay

D. Lime stone and gypsum

Answer: B

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35. Which of the following halides is the most stable ?

A. CF_4

B. Cl_4

C. CBr_4

D. CCl_4

Answer: A

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36. Which of the following conceivable structure for CCl_4 will have a zero dipole moment ?

A. Square planar

B. Square pyramid (carbon at apex)

C. Irregualr tetraheadron

D. None of the above

Answer: D

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37. In laboratory, silicon can be prepared by the reaction of

A. SiO2 with Mg

B. By heating C in electric furnace

C. By heating potassium fluorosilicate with potassium

D. None of these

Answer: A

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38. Ge (II) compounds are powerful reducing agents whereas Pb(IV) compound are strong oxidants. It can be due to

A. Pb is more electropositive than Ge

B. ionization potential of lead is lesst than that of Ge

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

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

Answer: D

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39. A pseudo solid is

A. Diamond

B. Glass

C. Rocks salt

D. $CaCO_3$

Answer: B

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40. C and Si have

A. Same physical properties

B. Different physical properties

C. Same pyhsical but different chemical properties

D. Different chemical and physical properties

Answer: D

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41. Which does not exist ?

A. $[SiCl_6]^{2-}$

B. $[GeF_6]^{2-}$

C. $[CCl_6]^{2-}$

D. $[SnCl_6]^{2-}$

Answer: C

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42. Sillicon is an important constituent of

A. Chloropyll

B. Haemolobin

C. Rocks

D. Amalgams

Answer: C

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43. Pyrex glass is a mixture of

A. Sodium brosilicate and aluminium borosilicate

B. Sodium silicate and calcium silicate

C. Sodium silicate and lead silicate

D. Sodium silicate and aluminium borosilicate

Answer: A

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44. Silica is soluble in

A. HCl

B. HNO_3

C. H_2SO_4

D. HF

Answer: D

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45. Freon-12 is used as a

A. Refrigerant

B. Insecticide

C. Fungicide

D. Herbicide

Answer: A

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46. Which one of the following reacts with conc. H_2SO_4 ?

A. Au

B. Ag

C. Pt

D. Pb

Answer: B

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47. Quartz is a crystalline variety (purest form) of

A. Si

B. SiO_2

C. Na_2SiO_3

D. SiC.

Answer: B

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48. Carborundum is the commercial name of

A. $Al_2(SO_4)_3$

B. $Al_2O_3.2H_2O$

C. $AlCl_3$

D. SiC.

Answer: D

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49. An oxide of lead which is used in lead storage batteries, in safety matches and is a powerful oxidising agent is

A. PbO

B. PbO_2

C. Pb_3O_4

D. $2PbO, PbO_2$

Answer: B

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50. Which of the following is most electronegative ?

A. Pb

B. Si

C. C

D. Sn

Answer: C

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51. Cassiterite is an ore of

A. Mn

B. Ni

C. Sb

D. Sn

Answer: D

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52. Lead sulphate is soluble in

A. Conc. HNO_3

B. conc. HCl

C. solution of ammonium acetate

D. water

Answer: C

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53. Percentage of lead in lead pencil is

A. Zero

B. 20

C. 80

D. 70

Answer: A

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54. The shape of gaseous $SnCl_2$ is

A. Tetrahedral

B. Linear

C. Angular

D. T - shaped

Answer: C

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55. Which has the most stable $+2$ oxidation state ?

A. Fe

B. Sn

C. Pb

D. Si

Answer: C

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56. PbF_4, $PbCl_4$ exist but $PbBr_4$ and Pbl_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

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57. Mark the oxide which is amphoteric in character.

A. CO_2

B. SiO_2

C. SnO_2

D. CaO

Answer: C

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58. Which of the following sulphate is insoluble in water ?

A. $CuSO_4$

B. $CdSO_4$

C. $PbSO_4$

D. $Bi_2(SO_4)_3$

Answer: C

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59. The important ore of lead is

A. Chalcopyrites

B. Haematite

C. Glaena

D. Bauxite

Answer: C

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60. Cassiterite is an ore of

A. Cu

B. Sn

C. Si

D. B

Answer: B

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61. Which one of the following allotropic forms of carbon is isomorphous with crystalline silicon?

A. Graphite

B. Coal

C. Coke

D. Diamond

Answer: D

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62. The electronic configuration of four different elements is given below. Identify the group 14 elements among these.

A. $[He]2s^1$

B. $[Ne]3s^2$

C. $[Ne]3s^23p^2$

D. $[Ne]3s^23p^5$

Answer: C

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

A. 167180348

B. 180167348

C. 348167180

D. 348180167

Answer: D

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64. The element that does not form a monoxide is

A. Lead

B. Tin

C. Germanium

D. Silicon

Answer: D

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65. Which among CH_4, SiH_4, GeH_4, and SnH_4 is the most volatile?

A. CH_4

B. SiH_4

C. GeH_4

D. SnH_4

Answer: A

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66. Which of the following is most stable ?

A. Sn^{2+}

B. Ge^{2+}

C. Si^{2+}

D. Pb^{2+}

Answer: D

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67. The veriety of glass used in making lenses and prisms is

A. Soda glass

B. Borosilicate glass

C. Flint glass

D. Crooke's glass

Answer: C

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68. Pyrosilicate ion is:

A. SiO_2^{2-}

B. SiO_4^{2-}

C. $Si_2O_6^{7-}$

D. $Si_2O_7^{6-}$

Answer: D

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69. Which of the following molecule has highest bond energy?

A. F-F

B. C -C

C. N -N

D. O -O

Answer: B

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70. Which of the following lead oxides is 'Sindhur' ?

A. PbO

B. PbO_2

C. Pb_2O_3

D. Pb_3O_4

Answer: D

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71. The metal used for making radiation sheild is

A. Al

B. Fe

C. Zn

D. Pb

Answer: D

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72. Butter of tin is:

A. $SnCl_4.6H_2O$

B. $SnCl_4.4H_2O$

C. $SnCl_4.5H_2O$

D. $SnCl_2.2H_2O$

Answer: C

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73. An alloy of Pb and Sn is equal proportion is called

A. Pewter

B. Type metal

C. Solder

D. Constantan

Answer: C

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74. Which of the following reactions occurs at the anode during the recharging of lead storage battery ?

A. $Pb^2 + 2e^- \rightarrow Pb$

B. $Pb^{2+} + SO_4^{2-} \rightarrow PbSO_4$

C. $Pb \rightarrow Pb^2 + 2e^-$

D. $PbSO_4 + 2H_2O \rightarrow PbO_2 + 4H^+ + SO_4^{2-} + 2e^-$

Answer: D

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75. White lead is

A. Pb_3O_4

B. PbO

C. $2PbCO_3.\ Pb(OH)_2$

D. $Pb(CH_3COO)_2.\ Pb(OH)_2$

Answer: C

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76. Which one of the following is correct set of SiO_2

A. Linear,acidic

B. Linear ,basic

C. Tetrahedral , acidic

D. Angular , disc

Answer: C

Watch Video Solution

77. Butter of tin is:

A. $SnCl_2.5H_2O$

B. $SnCl_2.2H_2O$

C. $SnCl_2.4H_2O$

D. $SnCl_4.5H_2O$

Answer: D

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78. Glass is a:

A. Polymeric mixture

B. Microcrystalline solid

C. Super cooled liquid

D. Gel

Answer: C

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79. Graphite is a soft solid lubricant extremely difficult to melt. The reason for this anomalous behaviour is that graphite

A. has carbon atoms arranged in large plates of rings of stongly bound carbon atoms with weak interplate bounds

B. is a non - crystalline substance

C. is an allotropic from of diamond

D. has molecules of variable molecular masses like polymers

Answer: A

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80. What is water glass

A. Na_2SiO_3

B. $Na_2Al_2O_3$

C. $Al(OH)_3$

D. $K_2Al_2(SO_4)_2$

Answer: A

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81. The metal which does not form ammonium nitrate by reaction with dilute nitric acid is

A. Al

B. Fe

C. Pb

D. Mg

Answer: C

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82. The soldiers of Napoleon army while at Alps during freezing winter suffered a serious problem with regard to the tin buttons of

their uniform. White metallic tin buttons get converted to grey poweder. This transformation is relate to

A. an interaction with nitrogen of the air at very low temperatures

B. a change in the crystalline struture of tin

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

D. an interaction with water vapour contained in the humid air

Answer: B

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83. Tungsten carbide is an example of

A. substiutional solid solution

B. passive solid solution

C. sandwich solid solution

D. iterstitial solid solution

Answer: D

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84. SiO_2 is reacted with sodium carbonate. What is the gas liberated ?

A. CO

B. O_2

C. CO_2

D. O_3

Answer: C

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85. Which of the following oxides is amphoteric in nature?

A. CaO

B. CO_2

C. SiO_2

D. SnO_2

Answer: D

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86. In silicon dioxide:

A. each silicon atom is surrounded by four oxygen atoms and each oxygen atoms is bounded to two silicon two silicon

atoms

B. each silicon atom is surrounded by two oxygen atoms and each oxygen atom is bonded to two silicon atoms

C. Silicon is bonded to two silicon atoms

D. There are double bonds between silicon and oxygen atoms

Answer: A

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87. Formula for tear gas is

A. $COCl_2$

B. Cl_3NO_3

C. N_2O

D. none of these

Answer: B

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88. Which of the following is potassium ferricynide ?

A. $K_4\left[Fe(CN)_6\right]$

B. $K_3\left[Fe(CN)_6\right]$

C. $K_3[Fe(CN_3]$

D. $K_3\left[Fe(CN)_4\right]$

Answer: B

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89. Sodium nitroprusside when added to an alkaline solution of sulphide ions produces

A. red colouration

B. blue colouration

C. purple colouration

D. brown colouration

Answer: C

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90. White lead is

A. Pb_3O_4

B. PbO

C. $2PbCO_3 . Pb(OH)_2$

D. $Pb(CH_3COO)_2 . Pb(OH)_2$

Answer: C

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91. Which of the following is combustion reactions ?

A. $C + O_2 \rightarrow CO_2$

B. $CH_4 + 2O_2 \rightarrow 2CO_2 + 2H_2O$

C. $2Mg + O_2 \rightarrow 2MgO$

D. All of these

Answer: B

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92. vii. The stability of dihalides of Si, Ge, Sn and Pb increases steadily in the sequence :

A. $PbX_2 < SnX_2 < GeX_2 < SiX_2$

B. $GeX_2 < SiX_2 < SnX_2 < PbX_2$

C. $SiX_2 < GeX_2 < PbX_2 < SnX_2$

D. $SiX_2 < GeX_2 < SnX_2 < PbX_2$

Answer: D

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93. How many O-atoms are shared for SiO_4 tetrahedral in silicate anion of beryl mineral

A. 4

B. 3

C. 2

D. 1

Answer: C

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94. Name the type of the structure of silicate in which one oxygen atom of $[SiO_4]^{4-}$ is shared

A. Pyrosilicate

B. Three dimensional

C. Linear chain silicate

D. Sheet silicate

Answer: A

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95. Which of the following on thermal decomposition yields a basic as well as an acidic oxide?

A. $NaNO_3$

B. $KClO_3$

C. $CaCO_3$

D. NH_4NO_3

Answer: C

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96. Using the data provided, calculate the multiple bond energy $\left(kJmol^{-1}\right)$ of a $C \equiv C$ bond in C_2H_2. That energy is (take the bond energy of a $C - H$ bond as $350kJmol^{-1}$).

$2C_{(s)} + H_{2(g)} \rightarrow C_2H_{2(g)}, \Delta = 225kJmol^{-1}$

$2C_{(s)} \rightarrow 2C_g), \Delta H = 1410kJmol^{-1}$

$H_{2(g)} \rightarrow 2H_{(g)}, \Delta H = 330kJmol^{-1}$

A. 1165

B. 837

C. 865

D. 815

Answer: D

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97. With respect to graphite and diamond, which of the statements is (are) correct ?

A. Graphite is harder than diamond

B. Graphite has higher electrical conductivity than diamond

C. Graphite has higer thermal conductivity than diamond

D. Graphite has higer C- C bond order than diamond

Answer: B::D

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98. The basic structural unit of silicates is

A. SiO_4^{2-}

B. SiO^-

C. SiO_4^{4-} ion

D. SiO_3^{2-}

Answer: C

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99. Which of the following structure is similar to graphite e?

A. B_2H_6

B. BN

C. B

D. B_4C

Answer: B

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100. The number of carbon atoms per unit cell of diamond unit cell is

A. 1

B. 4

C. 8

D. 6

Answer: C

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101. Which of these is not a monomer for a high-molecular mass silicone polymer?

A. $PhSiCl_3$

B. $MeSiCl_3$

C. Me_2SiCl_2

D. Me_3SiCl

Answer: D

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102. Which of the following does not give oxygen on heating ?

A. $(NH_4)_2Cr_2O_7$

B. $KClO_3$

C. $Zn(ClO_3)_2$

D. $K_2Cr_2O_7$

Answer: A

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Selected Straight

1. Which of the following minearl (s) contain SiO_2 ?

A. Agate

B. Amethyst

C. Flints

D. Kieselguhar

Answer: A::B::C::D

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2. SiO_2 or ordinary sand reacts with

A. Conc.HCl

B. HF

C. NaOH (hot)

D. CO_2

Answer: B::C

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3. which of the following arethe ores of lead ?

A. Galena

B. Anglesite

C. Cerussite

D. Plumbago

Answer: A::B::C

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4. Red colour can be imparted to glass by

A. Gold

B. Selenium

C. Cuprous oxide

D. Iron(3) oxide

Answer: A::B::C

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5. Mica is known for its

A. good thermal conductivity

B. good electrical conductivity

C. good thermal insulation

D. good electrical insulation

Answer: A::D

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6. $SnCl_2$ is used

A. as a mordant in dyeing

B. as an oxidising agent

C. good thermal insulation

D. in the preparation of colloidal gold

Answer: A::B::C::D

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7. Tin (IV) chloride is

A. a covalent compund

B. a voatile liquid at room temperature

C. a covalent compound

D. tetrahedral in shape

Answer: A::B::C::D

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8. Graphite is a

A. good conductor of heat

B. good conductor of electricity

C. bad conductor of heat

D. bad conductor of electricity

Answer: A::B

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9. Carbon dioxide is iso-structural with

A. $HgCl_2$

B. $SnCl_2$

C. C_2H_2

D. NO_2.

Answer: A::C

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10. CO_2 is iso -structural with

A. $SnCl_2$

B. $HgCl_2$

C. SCl_2

D. ZnI_2

Answer: B::D

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11. Which of the following structure is similar to graphite e?

A. B

B. B_4C

C. B_2H_6

D. BN

Answer: D

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12. A fibrous mineral which can withstand red hot flames without any damage is

A. talc

B. glass wool

C. asbestos

D. soap stone

Answer: C

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13. Carborundum is obtained when silica is heated at high temperature with

A. Carbon

B. Carbon monoxide

C. Carbon dioxide

D. Calcium carbronate

Answer: A

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14. Moderate electrical conductivity is shown by

A. Silica

B. Graphite

C. Diamond

D. Carborundum

Answer: B

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15. The electronegativity of the following elements increases in the order

A. C,N,Si,P

B. N ,Si , C ,P

C. Si , P , C , N

D. P , Si ,N ,C

Answer: C

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16. The species that do not contain peroxide ions, is

A. PbO_2

B. H_2O_2

C. SrO_2

D. BaO_2

Answer: A

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17. The material used in solar cells contains

A. Cs

B. Si

C. Sn

D. Ti

Answer: B

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18. Which one of the following oxides is neutral ? A)CO B)SnO_2 C)ZnO D)SiO_2

A. CO

B. SnO_2

C. ZnO

D. SiO_2

Answer: A

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19. Which of the following halides is least stable and has a doubtful existence ?

A. CI_4

B. GeI_4

C. SnI_4

D. PbI_4

Answer: D

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20. Which of the following compounds has sp^2-hybridisation?

A. CO_2

B. SO_2

C. N_2O

D. CO

Answer: A

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21. The correct order of increasig $C-O$ bond length of CO, CO_3^{2-}, CO_2 is

A. $CO_3^{2-} < CO_2 < CO$

B. $CO < CO_3^{2-} < CO_2$

C. $CO_2 < CO_3^{2-} < CO$

D. $CO < CO_2 < CO_3^{2-}$

Answer: D

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22. $(me)_2SiCl_2$ on hydrolysis will produces:

A. $(Me)_2Si(OH)_2$

B. $(Me)_2Si = O$

C. $\left[(Me)_2Si - O\right]_n$

D. $(Me)_2SiCl(OH)$

Answer: C

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23. Lead and tin are extracted form their chief ores by

A. carbon reduction and self reduction

B. self reduction and carbon reduction

C. electrolysis and self reduction

D. self reduction and electrolysis

Answer: B

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24. $[SiO_4]^{4-}$ has tetrahedral structure, the silicate formed by using the three oxygen has

A. two dimensional sheet structure

B. pyrosilicate structure

C. linear polymeric structure

D. three dimensional structure

Answer: A

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25. Which gas is evolved when PbO_2 is treated with conc HNO_3 ?

A. NO_2

B. O_2

C. N_2

D. N_2O

Answer: B

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26. A metal, M from chaloride in its $+2$ and $+4$ oxidation states . Which of the following statement about thes chalorides is correct ?

A. MCl_2 is more volatile than MCl_4

B. MCl_2 is more soluble in anhydrous ethanyl than MCl_4

C. MCl_2 is more ionic than MCl_4

D. MCl_2 is more easily hydrolysed than MCl_4

Answer: C

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27. Which of the following anions is present in the chain structure of silicates?

A. Si_4^{4-}

B. $Si_2O_7^{6-}$

C. $\left(Si_2O_5^{2-}\right)_n$

D. $\left(SiO_3^{2-}\right)_n$

Answer: D

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28. Which of the following oxidation states are the most characteristics for lead and tin, respectively?

A. $+2,\ +2$

B. $+4,\ +2$

C. $+2,\ +4$

D. $+4,\ +4$

Answer: C

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29. The correct order of C-O bond length among

A. $CO < CO_2 < CO_3^{2-}$

B. $CO_2 < CO_3^{2-} < CO$

C. $CO < CO_3^{2-} < CO_2$

D. $CO_3^{2-} < CO_2 < CO$

Answer: A

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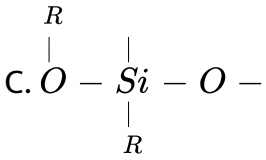
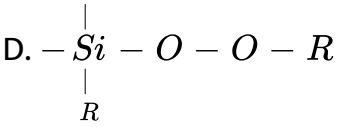
30. The repeating structural unit of silicone is

A. SiO_2

B. $\begin{matrix} & R & \\ & | & \\ Si & - & O - \\ & | & \\ & R & \end{matrix}$

C. 

D. 

Answer: B

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31. Among the following substituted silanes, the one which will give rise to cross linkes silicons polymer on hydrolysis is

A. R_3SiCl

B. R_4Si

C. $RSiCl_3$

D. R_2SiCl_2

Answer: C

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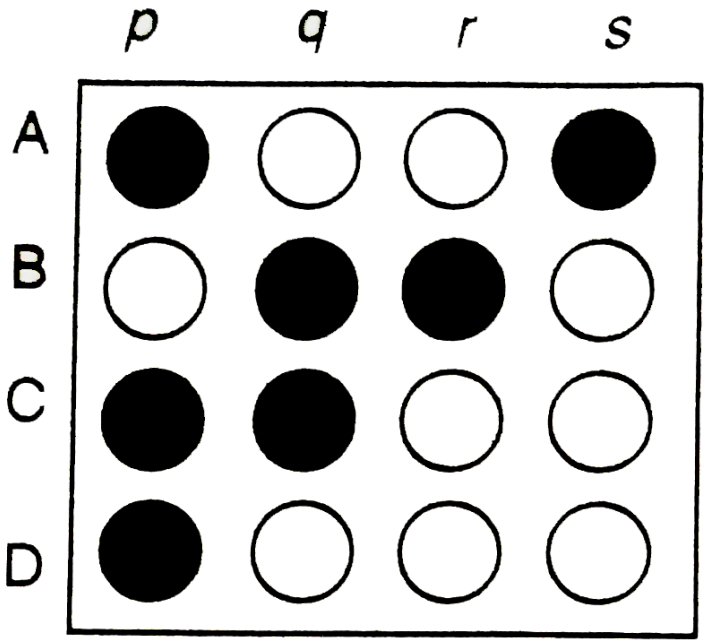
Matrix

1. Here each questions contains statements given in two columnns which have to be matched. Statements in Column I are labelled as A, B C and D wheras the statements in Coloumn II are labelled as p,q,r and s. the answer to these questions are to be appropriately bubbled as illustrated below in the following example. if the correct matches are A-P, A-s,B-q, B-r, C p ,C-q and D-p, their correctly labelled 4 x 4 matrix should look the .



Column I	Column II
(A) Sn	(P) Highest density amongst group 14 elements
(B) Pb	(q) Lowest melting point amongst group 14 elements
(C) Si	(r) Lowest I.E. amongst group 14 elements
(D) Ge	(s) Semiconductor used in transistor

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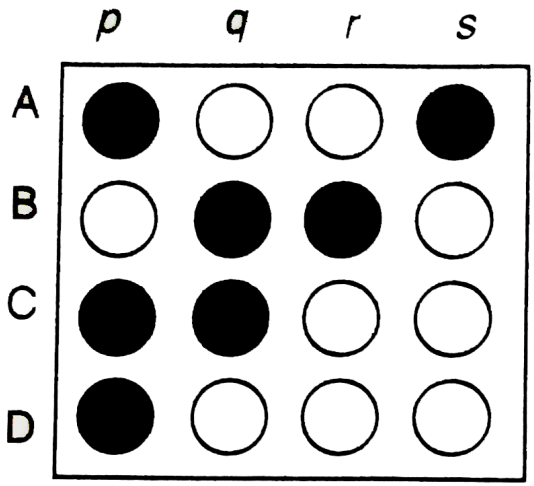
2. Here each questions contains statements given in two columnns which have to be matched. Statements in Column I are labelled as A, B C and D wheras the statements in Coloumn II are labelled as p,q,r

and s. the answer to these questions are to be appropriately bubbled as illustrated below in the following example. if the correct matches are A-P, A-s,B-q, B-r, C p ,C-q and D-p, their correctly labelled 4 x 4 matrix should look the .



Column I	Column II
(A) GeO	(p) Amphoteric
(B) CO	(q) Boric
(C) SnO_2	(r) Acidic
(D)Te_2O	(s) Neutral

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Integer

1. Value of x in aluminium carbide Al_xC_3 is

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2. Amongst the following, the following , the total number of amphoteric oxides is CO,SnO,PbO,CO_2, SiO_2, GeO_2, SnO_2, PbO_2

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3. When graphite is heated with vapour of M (metals like K,Pb,Cs) it forms C_xM. The value of x is

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4. The number of water molecules present in butter often is .....

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Assertion And Reason

1. Statement-I : Adamantine silicon is obtained by heating silica with aluminium.

Statement-II : Adamantine silicon is an alloy of aluminium and silicon.

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: C

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2. Assertion : When silicon is heated with magnesium in an electric furnace Mg_2Si is produced

Reason: Magnesium reacts with Si directly at high temperature.

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: A

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3. Assertion : When finely divided silica is heated with magnesium, silicon is obtained

Reason: Magnesium reduces silica to silicon.

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: A

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4. Statement-I : Tin (IV) chloride is a solid with high melting point.

Statement -II : Tin (IV) chloride is an ionic compound.

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. Both A and R are false

Answer: D

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5. Assertion : Between $SiCl_4$ and CCl_4 only $SiCl_4$ reacts with water.

Reason : $SiCl_4$ is ionic and CCl_4 is covalent.

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: C

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6. Assertion: CO_2 is a gas while SiO_2 is a solid at room temperature .

Reason: CO_2 is a covalent compound and SiO_2 is an ionic solid.

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: C

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7. Assertion : The man who fits or fixes water pipes in our homes etc. is called a plumber

Reason: Pipes used for carrying water were made up of lead at one time.

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: A

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8. Assertion : Plumbago is an allotropic form of lead.

Reason: in Roman, lead is called Plumbum.

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: D

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9. Assertion : Si-Si bond is stronger than Si-O bond.

Reason: Silicon form Si-Si bond easily.

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. Both A and R are false

Answer: D

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10. Assertion: tin(II) chloride is ionic and reducing in nature.

Reason: Sn shows both +2 and +4 oxidation state.

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer:

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11. Assertion: Pb^{4+} can be reduced easily to Pb^{2+}.

Reason: Pb^{2+} is paramagnetic.

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer:

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12. Assertion (A) : PbI_4 is astable compound .

Reason (R) : Iodide ion stabilised higher oxidation state ,

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer:

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13. Assertion: SiF_6^{2-} is known but $SiCl_6^{2-}$ is not.

Reason: Size of fluorine is small and its lone pair of electrons intersects with d-orbitals of Si strongly.

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer:

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14. Assertion: Silicones are hydrophobic in nature.

Reason: $Si - O - Si$ linkage are moisture sensitive.

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer:

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15. Assertion (A) : SnI_4 is an orange solid .

Reason (R) : The colour arises due to charge transfer .

A. Both A and R are true and R is the correct explanatoin of A

B. both A and R are true but R is the correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer:

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Ultimate

1. Stannous oxide can be obtained by

A. heating tin strongly in air

B. heating meta-stannic acid

C. heating tin (II) oxalate

D. none of these

Answer: C

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2. Tin (II) chloride (anhydrous) can be obtained

A. by melting tin with conc. HCl and heating the product to dryness

B. by treating tin with dil. HCl and heating the product to dryness

C. by treating tin with HCl (gas).

D.

Answer: D

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3. Tin (IV) chloride (anhydrous) can be obtained

A. by action of molten tin and Cl_2

B. by heating tin and conc. HCl and dehydrating the product in an atmosphere of HCl(g)

C. by treating tin with dil. HCl and heating the product to dryness

D. none of these

Answer: A

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4. Tin (II) fluoride (anhydrous) can be obtained by

A. treating tin with F_2

B. treating tin with HF

C. dissolving SnO in HF

D. none of these

Answer: C

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5. Lead (IV) oxide is obtained by

A. heating lead (II) oxide strongly in air

B. heating lead strongly in pure oxygen

C. oxidising lead with conc. HNO_3

D. none of these

Answer: D

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6. Oridinary sand (SiO_2) is attacked by

A. Conc. HCl

B. Conc. HBr

C. hot KOH

D. none.

Answer: C

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7. When a mixture of sand and KNO_3 is heated strongly the gaseous product (s) is /are

A. NO_2

B. O_2

C. Both (A) and (B)

D. none

Answer: C

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8. Tin bronze is

A. An alloy of tin and bronze

B. an alloy of tin, copper and zinc

C. an alloy of tin and copper

D. none of these

Answer: D

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9. Lead sulphate dissolves in

A. conc. HNO_3

B. $KMnO_4 / H^+$

C. $K_2Cr_2O_7 / H^+$

D. none of these

Answer: D

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10. Which of the following is not an ore of lead ?

A. Galena

B. plumbago

C. anglesite

D. cerussite

Answer: B

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11. The common blueing agent used for removing yellow tint from clothes (i., e Neel) is

A. indigo an organic compound

B. a compound of tin and copper

C. a compound of lead and cobalt

D. a compound of Na and Al

Answer: D

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