CHEMISTRY

BOOKS - BEYOND PUBLICATION

CHEMICAL BONDING

Example

1. List the factors that determine the type of bond that will be formed between two atoms.

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2. How can you identify the type of bond formation between two atoms ?

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3. Explain the difference between the valence electrons and the covalency of an element.

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4. How valence electrons different from the covalency of element ? Explain with examples.

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5. Which chemical compound has the following Lewis notation : How many valence electrons does element Y have?

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6. Which chemical compound has the following Lewis notation : What is the valency of element X ?

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7. Which chemical compound has the following Lewis notation : How many covalent bonds are there in the molecule ?

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8. A Chemical compound has the following Lewis notation : To which groups the elements X and Y belong ? (AS_2)

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9. Why do valency electrons involve in bond formation , than electrons of inner shells ?

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10. Why do valency electrons involve in bond formation , than electrons of inner shells ?

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11. How bond energies and bond lengths of molecule help us in predicting their chemical properties? Explain with examples.

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12. How bond energies and bond lengths of molecule help us in predicting their chemical properties? Explain with examples.

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13. Draw simple diagrams to show how electrons are arranged in the following covalent molecules: Water (H_2O)

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14. Draw simple diagrams to show how electrons are arranged in the following covalent molecules: Water (H_2O)

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15. Draw simple diagrams to show how electrons are arranged in the following covalent molecules: Chlorine (Cl_2)

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16. Represent the molecule H_2O using Lewis notation.

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17. How can you explain the formation of H_2O molecule using dot structure?

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18. Represent each of the following atoms using Lewis notation. Beryllium

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19. Represent each of the following atoms using Lewis notation. Calcium

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20. Represent each of the following atoms using Lewis notation. Lithium

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21. Represent each of the following atoms using Lewis notation. Bromine gas (Br_2)

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22. Represent each of the following atoms using Lewis notation. Calcium chloride $(CaCl_2)$

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23. Represent each of the following atoms using Lewis notation. Carbon dioxide (CO_2)

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24. What is octet rule? How do you appreciate role of the 'octet rule' in explaining the chemical properties of elements ?

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25. How do you appreciate role of the 'octet rule' explaining the chemical properties of elements ?

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26. What is hybridization ? Explain the formation of the following molecules using hybridization. (a) $BeCl_2$ (b) BF_3

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27. Explain the formation of sp and sp^2 hybridization using examples.

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28. What is the name given to inter mixing of atomic orbitals to form new orbitals. Explain the formation to form new orbitals. Explain the formation of following molecules by using that process. (a) $BeCl_2$ (b) BF_3

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29. Explain the formation of sodium chloride and calcium oxide on the basis of the concept of electron transfer from one atom to another atom.

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30. A , B and C are three elements with atomic numbers 6, 11 and 17 respectively. i) Which of these from ionic bond ? Why ?

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31. A, B, and C are three elements with atomic numbers 6, 11 and 17 respectively : Which of these cannot form covalent bond ? Why ?

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32. A, B, and C are three elements with atomic numbers 6, 11 and 17 respectively : Which of these can form ionic as well as covalent bond ?

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33. Predict the reasons for low melting point for covalent compounds when compared with ionic compounds.

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34. "Covalent compounds have low melting point". What is the reason for this statement? Explain.

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35. What are compounds formed due to sharing of electrons between the atoms. Why have low melting and boiling points ?

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36. How Lewis dot structure helps in understanding bond formation between atoms?

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37. Give the Lewis dot structure of HNO_3.

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38. Explain the formation of the following molecules using valence bond theory. O_2 molecule

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39. Write the formation of double bond and triple bond according to valence bond theory.

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40. Two chemical reactions are described below. (i) Nitrogen and hydrogen react to form ammonia., give A) The valence of each of the atoms involved in the reaction., B) The Lewis structure of the product that is formed.

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41. Two chemical reactions are described below.(ii) Carbon and hydrogen bond together to form a molecule of methane (CH4). give A) The valence of each of the atoms involved in the reaction.,B) The Lewis structure of the product that is formed.

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42. Collect the information about properties and uses of covalent compounds and prepare

a report.

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43. Collect the information about properties and uses of covalent compounds and prepare a report.

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44. Generally these compounds are non polar in nature. What are the those compounds.

Explain their properties and uses.

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45. Write any two uses and two properties of covalent compounds.

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46. How do they (elements) usually exist?

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47. Do atoms exist as a single atom or as a group of atoms ?

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48. Are there elements which exist as atoms?

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49. Why do some elements exist as molecules and some as atoms?

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50. Why do some elements react vigorously while others are inert?

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51. Why is the chemical formula for water H_2O and for sodium chloride NaCl, why not HO_2 and $NaCl_2$?

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52. Why do some atoms combine while others do not?

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53. Are elements and compounds simply made up of separate atoms individually arranged?

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54. Is there any attraction between atoms?

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55. Two ice cubes are pressed over each other and unite to form one cube, which force is rsponsible, for holding them together?

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56. Why there is absorption of energy in certain chemical reactions and release of energy in other reactions?

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57. Where the absorbed energy goes?

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58. Is there any relation to energy and bond formation between atoms?

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59. What could be the reason for the change in reactivity of elements?

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60. In which month is the duration off dry minimum? What could be the reason for this?

1. Observe the following table and answer

Place	Month	Temperature Min.	Temperature Max.	Rain fall	Sun rise	Sun set
Rentachintala	January	21°C	27°C	2.41 mm	6.50	17.12
	April	39°C	47°C	0.01 mm	6.11	17.47
	August	24°C	34°C	39.12 mm	6.37	17.31

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61. The atoms of these elements are highly stable:

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62. What have you observed about the main groups?

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63. Why do atoms of elements try to combine and form molecules?

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64. Is it accidental that IA to VIIA main group elements during chemical reactions get eight electrons in the outermost shells of their ions, similar to noble gas atoms?

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65. Explain the formation of ionic compounds NaCl, $MgCl_2$, Na_2O and $AlCl_3$ through Lewis electron dot symbols (formulae).

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66. How do cations and anions of an ionic compound exist in its solid state?

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67. Do you think that pairs of Na^+Cl^- as units would be present in the solid crystal?

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68. Which inventions is most important related to micro organisms? Can you explain the reasons, why it is so important?

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69. Can you say what type of bond exists between atoms of nitrogen molecule?

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70. What do you understand from bond lengths and bond energies?

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71. Are the values not different for the bonds between different types of atoms?

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72. What is the bond angle in a molecule?

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73. How is HCl molecule formed?

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74. Write the Lewis structures of methyl nitrite and ethyl alcohol,

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75. Do you find any relation between sunrise and seasons?

1. Observe the following table and answer the

Place	Month	Temperature Min.	Temperature Max.	Rain fall	Sun rise	Sun set
Rentachintala	January	21°C	27°C	2.41 mm	6.50	17.12
	April	39°C	47°C	0.01 mm	6.11	17.47
	August	24°C	34°C	39.12 mm	6.37	17.31

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76. The atoms of these elements are highly stable:

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77. What is chemical bond? When is it formed?

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78. How is an anion formed?

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79. Which type of compounds are more soluble in polar solvents ?

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80. Why are molecules more stable than atoms?

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81. Which compounds exhibit low melting and boiling points?

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82. On which factors do anions depend?

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83. How do you know the valence of a metal?

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84. Why do atoms combine and form molecules?

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85. What is 'orbital concept of bond formation'?

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86. What is the use of VSEPR theory?

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87. Why ionic compounds are good electrolytes?

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88. What is 'crystal lattice'?

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89. How is a π (pi) bond formed?

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90. What is a polar bond?

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91. How many σ and π bonds are in O_2 molecule?

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92. What are the bond angles in H_2O and NH_3 molecules as per VBT?

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93. What is an ion?

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94. Write a short note on bond angles.

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95. Covalent bond is formed by

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96. What are the forces present in an ionic bond?

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97. What is the use of quantum numbers ? What is electronic configuration ?

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98. Which forces are weaker forces and where are they operative?

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99. What is VSEPRT?

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100. How is a cation formed?

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101. Name the bonds present in the molecules

i) $BaCl_2$

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102. When is ionic bond formed between atoms?

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103. How many sigma and pi bonds are present in acetylene molecule?

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104. What is meant by inter-nuclear axis?

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105. NaCl dissolves in water but not in benzene. Explain.

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106. Why noble gases (inert gases) are stable?

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107. What are the structures of sodium chloride and calcium chloride crystals?

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108. What is Octet rule ? Briefly explain its significance and limitations.

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109. How is a cation formed?

Watch Video Solution

110. Which compounds exhibit high melting and boiling points?

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111. What is ionic linkage?

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112. How do you know the valence of a non-metal?

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113. When is ionic bond formed between atoms?

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114. Why a molecule of hydrogen is more stable than the uncombined atoms?

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115. What is lattice ?

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116. How is a π (pi) bond formed?

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117. What are multiple bonds?

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118. What is bond length? Discuss different factors influencing bond length.

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119. Which type of atoms easily enter into ionic bonding?

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120. Sulphur dioxide is a diamagnetic molecule. Explain.

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121. What are Lewis structures?

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122. In case of ionic substances, a more appropriate term is formula weight, rather than 'molecular weight'. Why?

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123. What is ionisation? Give one example.

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124. What is a coordination number?

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125. Draw the structural diagram of Ammonia molecule as per the valence - shell electron pair repulsion theory.

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126. Write the names of any two compounds which have ionic bond.

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127. Distinguish between a sigma bond and a pi bond.

Watch Video Solution

128. Write about ‘Hydrogen bond’.

Watch Video Solution

129. Write the difference between ionic bond and covalent bond.

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130. Write about VSEPR theory.

Watch Video Solution

131. Write a short note on octet rule with example.

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132. Why a large amount of energy is needed to remove an electron from a neutral gaseous neon atom than the energy needed to remove an electron from gaseous sodium atom?

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133. Is there any attraction between atoms?

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134. What happens when two atoms come close together ?

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135. (Fill in the blanks) .....helped us explaining the formation of chemical bonds.

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136. Why there is absorption of energy in certain chemical reactions and release of energy in other reactions?

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137. Electronic configuration of X is 2, 8, 1 and electronic configuration of Y is 2, 8, 7. Explain what type of bond is formed between them.

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138. Why do valency electrons involve in bond formation , than electrons of inner shells ?

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139. Why ionic compounds dissolve in polar solution and covalent compounds dissolve in non-polar solution?

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140. Represent each of the following atoms using Lewis notation. Calcium

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141. What is hybridisation?

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142. What are the important characteristic features of hybridisation?

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143. Can you suggest an experiment to prove that ionic compounds possess strong bonds when compared to that of covalent bonds? Explain the procedure.

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144. Explain the shape of XeF_4 on the basis of VSEPR theory.

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145. In which of the following bond angle can not be explained by Valence Bond Theory?

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146. If the electronic configurations of atoms A and B are $1s^2, 2s^2, 2p^6, 3s^2, 3p^{1'}$ and $1s^2, 2s^2, 2p^4$ respectively, then Which atom forms negative ion ?

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147. If the electronic configurations of atoms A and B are $1s^2, 2s^2, 2p^6, 3s^2, 3p^{1'}$ and $1s^2, 2s^2, 2p^4$ respectively, then Which atom forms negative ion ?

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148. If the electronic configurations of atoms A and B are $1s^2, 2s^2, 2p^6, 3s^2, 3p^{1'}$ and $1s^2, 2s^2,$

$2p^4$ respectively, then Which atom forms negative ion ?

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149. If the electronic configurations of atoms A and B are $1s^2$,$2s^2$, $2p^6$, $3s^2$, $3p^{1'}$ and $1s^2$, $2s^2$, $2p^4$ respectively, then What is the molecular formula of the compound formed by atoms A and B ?

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150. (i) Write the electron-dot structures for sodium, oxygen and magnesium.

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151. Show in the form of a picture, the formation of Na_2O and MgO.

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152. A chemical compound has the formula AB_3. Identify the molecule. A) Without any lone pair's.

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153. A chemical compound has the formula AB_3. Identify the molecule. B) With one lone pair.

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154. A chemical compound has the formula AB_3. Identify the molecule. C) Mention the shape of any one of the above molecules.

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155. Electronic configuration of a molecule 'X' is $1s^2, 2s^2, 2p^1$. It should form XF molecule. But if forms XF_3. How can it possible ? What the 'X' may be ?

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156. What are true about Lewis dot structures of molecules ?

Each bond is formed as a result of sharing of an electron pair between the atoms.

Each combining atom contributes one electron to the shared pair.

Octets of both the atoms get completed

Electron dot structures also known as Lewis structures of molecules.

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157. Elements X, Y have atomic numbers 9 and 12 respectively. Which one of these a) forms negative ion ?

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158. Elements X,Y have atomic numbers 9 and 12 respectively. Which one of these forms positive ion ?

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159. An element with electronic arrangement as 2, 8, 18, 1 will exhibit the following stable oxidation states

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160. An element 'P' has electronic configuration (2 , 8, 18, 1) wihtout identifying P.

b) State whether you would expect the element P to be a metal or a non-metal.

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161. An element 'P' has electronic configuration (2 , 8, 18, 1) wihtout identifying P. c) Write the probable formula and appearance of chloride of P.

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162. An element 'P' has electronic configuration (2 , 8, 18, 1) wihtout identifying P. d) Write the probable formula and stability of hydroxide of P.

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163. Collect the information about properties and uses of covalent compounds and prepare a report.

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164. What is the crystal structure of cesium chloride ?

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165. Give the electron dot formula for the following. Magnesium chloride

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166. Give the electron dot formula for the following. Carbon-di-oxide

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167. Give the electron dot formula for the following. Carbon tetrachloride

Watch Video Solution

168. Give the electron dot formula for the following. Hydrogen bromide

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169. Write the electronic configuration of the following ions. A) Na^{+} b)$O^{2}-$ c)Cl^{-} d)S^{-2} e)$Al^{3}+$

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170. What is Kernel, according to Lewis?

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171. Explain the formation of uni-positive, di-positive and tri-positive ions with examples.

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172. Explain the formation of uni-positive, di-positive and tri-positive ions with examples.

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173. Ionic bond is also called

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174. What are the characteristic features of inert gases?

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175. Draw the structural diagram of Ammonia molecule as per the valence - shell electron pair repulsion theory.

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176. What are the failures of Bohr's model of atom ?

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177. Is there any relation to energy and bond formation between atoms?

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178. Explain the formation of uni, di, tri negative ions with examples.

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Exercise

1. Which one of the following four elements is more electronegative?

A. Sodium

B. Oxygen

C. Magnesium

D. Calcium

Answer:

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2. An element ${}_{11}X^{23}$ forms an ionic compound with another element 'Y'. Then the charge on the ion formed by 'X' is

A. (+1

B. (+2

C. (-1

D. (-2

Answer:

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3. An element 'A' forms a chloride ACl_4. The number of electrons in the valence shell of ‘A” is

A. 1

B. 2

C. 3

D. 4

Answer:

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4. The inert gas element which has octet electronic configuration in its outermost orbit is

A. Helium

B. Argon

C. Krepton

D. Radon

Answer:

5. Number of covalent bonds in ethane molecule

A. 7

B. 2

C. 3

D. 4

Answer:

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6. The concept 'hybridisation of orbitals of an atom' was introduced by

A. Lives Pouling

B. Mosley

C. Lewis

D. Kossel

Answer:

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7. The value of bond angle in beryllium chloride molecule is

A. 180°

B. 120°

C. 110°

D. 104.31°

Answer:

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8. Which are showed in Lewis dot structure ?

Either all electrons or valence electrons ?

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9. When is ionic bond formed between atoms?

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10. What is the bond of B-F bond in BF_3.

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11. Gain of electron or electrons is termed

A. Electropositivity

B. Electronegativity

C. Both

D. None

Answer:

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12. Electrons are .....charged sub-atomic particles present in the atom.

A. Electrons

B. Protons

C. Neutrons

D. None

Answer:

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13. Whcin bond is most polar?

A. NaCl

B. NH_3

C. H_2O

D. CH_4

Answer:

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14. The highly stable pair of ions are

A. Cations

B. Anions

C. A and B

D. None

Answer:

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15. What is the maximum covalency of oxygen ? Give examples.

A. 1

B. 2

C. 3

D. 4

Answer:

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16. Explain the shape and the bond angle in $BeCl_2$ in terms of VBT

A. Tetrahedral

B. Trigonal by pyramid

C. Liner

D. None

Answer:

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17. Why ionic compounds dissolve in polar solution and covalent compounds dissolve in non-polar solution?

A. polar

B. non-polar

C. both

D. none

Answer:

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18. Which of the following are polar protic solvents

A. $\mathbb{C}l_4$

B. C_6H_6

C. CS_2

D. H_2O

Answer:

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19. The bond in H_2O is.....

A. Covalent

B. Ionic

C. Coordinate covalent

D. Polar

Answer:

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20. Which of the following is ionic

A. NaCl

B. $MgCl_2$

C. $AlCl_3$

D. All

Answer:

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21. Oxygen has __ lone pairs of electrons in water molecule.

A. 1

B. 2

C. 3

D. 4

Answer:

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22. 1 nanometre =

A. $10^{-}7$ metre

B. 10^{-8} metre

C. 10^{-9} metre

D. 10^{-10} metre

Answer:

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23. Which of the following is the bond angle of Methane (CH_4) ?

A. $104^\circ 31'$

B. 120°

C. $107^\circ 48'$

D. $109^\circ 28'$

Answer:

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24. Which of the following element has less electronegativity

A. Fluorine

B. Cesium

C. Chlorine

D. Bromine

Answer:

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25. Which of the following has the minimum bond length?

A. 1.27

B. 1.28

C. 1.29

D. 1.3

Answer:

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26. Which of the following is the bond angle of Beryllium chloride $(Becl_2)$

A. 120°

B. 180°

C. $109^\circ 28'$

D. $107^\circ 48'$

Answer:

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27. Which hybridisation is found in NH_3 and H_2O ?

A. sp

B. sp^2

C. sp^3

D. $sp^2 - sp^2$

Answer:

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28. How many valence electrons are there in Cl - anion ?

A. 2

B. 8

C. 7

D. 17

Answer:

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29. In ammonia (NH_3) molecule, there are how many lone pair electrons ?

A. 1

B. 2

C. 3

D. 4

Answer:

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30. Which of the following is the shape of methane molecule ?

A. Trigonal - Planar

B. Tetrahedral

C. Trigonal - Pyramidal

D. V'-shape

Answer:

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31. Which of the following hybridisation is there in beryllium chloride $(BeCl_2)$ molecule ?

A. sp^3

B. sp^2

C. sp

D. None of these

Answer:

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32. Which of the following are true according to Lewis dot structure ?

A. NaCl

B. $MgCl_2$

C. $AlCl_3$

D. All

Answer:

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33. Which of the following is the shape of $(BeCl_2)$ molecule ?

A. Trigonal planar

B. Trigonal pyramid

C. Tetrahedron

D. V' - shape

Answer:

Watch Video Solution

34. Which of the following is the bond angle of H_2O molecule ?

A. $104^\circ 27'$

B. $107^\circ 48'$

C. $109^\circ 28'$

D. 120°

Answer:

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35. Which of the following is the shape of water (H_2O) molecule ?

A. Trigonal planar

B. Trigonal pyramidal

C. Tetrahedron

D. V' - shape

Answer:

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36. How many sigma bonds and π bonds are there in the formation of N_2 molecule ?

A. One sigma, one pi bond

B. Two sigma , one pi bond

C. One sigma, two pi bonds

D. Two sigma two pi bonds

Answer:

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37. Which of the following is hybridisation of water (H_2O) molecule ?

A. σsp^3

B. sp^2

C. $\sigma sp^3 - s$

D. $\sigma sp^3 - p$

Answer:

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38. The scientist who proposed the ionic bond is

A. Kossel

B. G.N. Lewis

C. Sidgwick

D. Powell

Answer:

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39. Valency of nitrogen is.....

A. 1

B. 2

C. 3

D. 4

Answer:

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40. Which of the following is a polar compound ?

A. CH_4

B. NH_3

C. H_2O

D. HCl

Answer:

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41. These elements exist as atoms but not molecules.....

A. halogens

B. metals

C. Inert gases

D. alkaline-earth metals

Answer:

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42. Chemical formula of common salt is _

A. Na_2Cl

B. NaCl

C. $NaCl_2$

D. Na_2Cl_2

Answer:

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43. Electrons are negatively charged and they .....each other.

A. attract

B. repel

C. neither attract nor repel

D. None of these

Answer:

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44. Sir, Humphry Davy is appreciable, because, he was extremely successful in

A. valence shell

B. neutralisation

C. electrolysis

D. condensation

Answer:

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45. These are responsible for the formation of bonds between atoms.

A. lone electrons

B. all electrons

C. valence electrons

D. no electrons

Answer:

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46. Noble gases belong to the following group

A. VIA

B. V

C. VIIA

D. VIIIA

Answer:

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47. Except this all the noble gases have eight electrons in their outermost shell.

A. Neon

B. Helium

C. Argon

D. Radon

Answer:

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48. Electron net charge in the V group element.

A. -4

B. -3

C. -2

D. -1

Answer:

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49. These ions lose electrons to form stable positive ions.

A. aniona

B. cations

C. both A & B

D. none

Answer:

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50. The valency of chlorine is.....

A. 1

B. 2

C. 3

D. 4

Answer:

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51. Magnesium loses this number of electrons to obtain neon configuration.

A. 0

B. 1

C. 2

D. 3

Answer:

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52. Nitrogen forms a .....covalent bond.

A. single

B. double

C. triple

D. none

Answer:

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53. Molecular formula of methane is

A. C_2H_2

B. CH_4

C. C_4H_4

D. C_2H_6

Answer:

Watch Video Solution

54. 1 nanometre =

A. $10^{-7}metre$

B. $10^{-8} metre$

C. $10^{-9} metre$

D. $10^{-10} metre$

Answer:

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55. The bond angle between H - O - H atoms.

A. 120°

B. $109^{\circ} 28'$

C. $107^{\circ} 18'$

D. $104^{\circ} 31'$

Answer:

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56. Arrange the following in a systematic order

formation of Anion

Electrostatic Force of attraction

Formation of ionicbond

Formation of cation

A. I,ii,iii,iv

B. I,iv,iii,ii

C. iv,ii,I,iii

D. iv,I,ii,iii

Answer:

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57. Valency of an element indicates

A. combining power of hydrogen

B. acidity

C. electrons in the outermost orbit

D. combining power of that element

Answer:

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58. _____ bond is present between the two oxygen atoms in oxygen molecule.

A. Single

B. Double

C. Triple

D. Hydrogen

Answer:

Watch Video Solution

59. The general valence shell configuration of inert gas is.....

A. ns^2np^4

B. ns^2np^5

C. ns^2np^6

D. ns^2np^3

Answer:

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60. The bond angle in water molecule is

A. 180°

B. 120°

C. $109^\circ 28'$

D. $104^\circ 28'$

Answer:

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61. Bonds in N_2 molecule are.....

A. 2σ

B. $1\sigma, \pi$

C. $2\sigma, 1\pi$

D. $1\sigma, 2\pi$

Answer:

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62. In the formation of $MgCl_2$ number of electrons transferred from Mg to Cl is

A. 1

B. 2

C. 3

D. 4

Answer:

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63. The atomic number of an element 'A' is 14. Which of the following information about the formula of its chloride and the nature of the bonds in it is correct ?

A. $Acl_4 - lonic$

B. `Acl4-Covalent

C. `Acl4-Covalent

D. $Acl_2 - lonic$

Answer:

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64. Which of the following molecules/ ions doesn't follow the octet rule ?

A. NH^+_4

B. PCl_3

C. C_2H_2

D. BCl_3

Answer:

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65. The atomic number of covalent element X is 12 the formula of its chloride is.....

A. XCl

B. XCl_2

C. XCl_3

D. X_2Cl

Answer:

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66. The atomic number of an element 'Y' is 19, the formula of its oxide is.....

A. YO

B. YO_2

C. Y_2O

D. Y_2O_3

Answer:

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67. The shape of the ammonia molecule is.....

A. linear

B. trigonal planar

C. phyramidal

D. tetra hydal

Answer:

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68. The bond angle is 120° among.....hybrid orbitals.

A. sp

B. sp^2

C. sp^3

D. All the above

Answer:

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69. What is the crystal structure of NaCl ?

A. FCC

B. BCC

C. NCC

D. BC

Answer:

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70. Ionic bond is formed between atoms of elements with electronegativity differences.....

A. gt 1.7

B. lt 1.7

C. gt 1.9

D. lt 1.9

Answer:

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71. The atomic number of an elemtn Z is 9. Which of the following statements about the molecule of Z is correct ?

A. It is a noble gas which is mono-atomic

B. It is a monoatomic metal

C. It is diatomic covalent molecule

D. It is diatomic ionic molecule

Answer:

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72. The electronic configuration of Selinium is 2, 8 , 18, 6. Which of us following statements about Selinium is wrong ?

A. Its hybride formula is H_2Se

B. It is a metalloid

C. It forms an acidic oxide

D. Its hybride is ionic

Answer:

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73. Which of the following statements about the element X whose atomic number is 14 is wrong ?

A. The electronic configuration of X is 2,8,7

B. It is an electronegative element

C. It forms an ionic chloride

D. It is a semi metal

Answer:

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74. Which of the following statements about an element A whose atomic number is 17 is correct ?

A. The anion it forms is A^-

B. It is an electropositive element

C. The electronic configuration of A is 2,8,2

D. All the above

Answer:

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75. Which of the following statements about an element whose atomic number is 16 is wrong ?

A. It is a non-metal with a valency of 2

B. It forms a hydride of formula H_2X

C. It forms covalent compound when reacts with sodium

D. It is a non-metal

Answer:

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76. Which of the following statements is corect about the element which comes below potassium in the periodic table ?

A. It is highly electropositive

B. It will have one e in its outer shell

C. It forms an ionic chloride of formula MX

D. All the above

Answer:

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77. Valency expresses...

total electrons in valence shell of an atom.

atomicity of an element .

oxidation number of an element.

combinig capacity of an element.

A. a,b

B. a,b,c

C. a,d

D. a,b,c,d

Answer:

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78. Which of the following compounds are covalent ? A) H_2 b) Cao c) $CHCl_3$ d)BI_3

A. a,b

B. c,d

C. a,d

D. a,c,d

Answer:

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79. Factors effecting the formation of the ionic bond

A. Atomic size

B. Ionization energy

C. Electron affinity

D. All the above

Answer:

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80. Which of the following elements ar electropositive ?a) Sodium b) Potassium c) Lithium d) Chlorine

A. a,d

B. b,c

C. a,b,c

D. d

Answer:

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81. The following are some statements about the characteristics of covalent compounds i) The combination of a metal and non-metal must give a covalent compound. ii) All covalent substances are bad conductors of electricity. iii) All covalent substances are gases at room temperature. The correct combination is

A. a,b,c

B. b,c,d

C. a,b,d

D. a,b,c,d

Answer:

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82. What are true about Lewis dot structures of molecules ?

Each bond is formed as a result of sharing of an electron pair between the atoms.

Each combining atom contributes one electron to the shared pair.

Octets of both the atoms get completed

Electron dot structures also known as Lewis structures of molecules.

A. c

B. b,c,d

C. a,b,c

D. a,b,c,d

Answer:

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83. Sodium atoms and sodium ions

A. are chemically the same

B. have the same number of protons

C. have on identical number of electrons

D. from covalent bonds

Answer:

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84. When sodium reacts with chlorine.

A. each sodium atom gains one electron

B. each chlorine atom loses one electron

C. a covalent bond is formed

D. the compound formed is a solid

Answer:

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85. Metal atoms tend to form ___

A. negative ions

B. positive ions

C. covalent bond

D. metallic bonds

Answer:

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86. If the element can lose an electron readily, they are said to be

A. electronegative

B. electropositive

C. Radio action

D. None of these

Answer:

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87. Which of the following is the most reactive ?

A. F

B. Cl

C. Br

D. I

Answer:

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88. An element reacts with oxygen to give a compound with a high melting point. This compound is also soluble in water. The element is likely to be

A. Calcium

B. Sulphur

C. Silicon

D. Arsenic

Answer:

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89. How do valence electrons are showed in the lewis structure ?

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90. The elements with three or less than three electrons in the outer shell are considered as

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91. How do you write the lewis dot structure for an inert gas ?

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92. Between which type of atoms ionic bond will form ?

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93. Why do we consider KCl as an ionic solid ?

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94. Which type of forces keeps the cations and anions together ?

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95. Whether compound formed due to ionic bond is negative or positive ?

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96. Write the names of any two compounds which have ionic bond.

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97. As Boran has one unpaired electron, what is the result of it ?

98. What is the hybridisation of B and N in borazole?

99. What are the bond angles in H_2O and H.S ? Why they differ in their bond angles even through the central atoms exhibit same hybridisations.

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100. How many fluorine atoms overlap their orbitals with hybridised boran orbitals ?

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101. Which type of orbitals that fluorine has ? Either s or p orbital ?

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102. Which elements try to lose three electrons from their atoms ? Why ?

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103. Write the lewis dot structures of carbon and magnesium ?

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104. The shape of a molecule is linear. What would be the bond angle in it ? Explain.

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105. There is a triple bond between two atoms. Which molecule they belongs to ? Which type of bonds ther are ?

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106. Which of the following forces are the strongest ?

A. Dipole - dipole forces

B. Ion - dipole forces

C. H - bond forces

D. Ion - ion forces

Answer:

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107. The chemical formula of zinc phosphate is

A. $Zn_3(PO_4)_3$

B. `Zn_3PO_4

C. `Zn(PO_4)_3

D. $Zn_2(PO_4)_3$

Answer:

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108. A pi bond is formed by _____ overlap of orbitals.

A. axial

B. lateral

C. without overlapping

D. can't form

Answer:

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109. The charge on a cation 'M' is +2 and anion 'A' is -3. The compound formed has the formula

A. MA_2

B. M_3A_2

C. M_2A_3

D. M_2A

Answer:

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110. Among $Licl, BeCl_2, BCl_3,$ and $CCl_4,$ the covalent bond character follows the order

A. LiCl gt$BeCl_2$ gt BCl_3gt CCl_4`

B. LiCl lt$BeCl_2$ lt BCl_3gt CCl_4`

C. LiCl gt$BeCl_2$ gt $\mathbb{C}l_4$gt BCl_3`

D. LiCl lt$BeCl_2$ lt BCl_3gt CCl_4`

Answer:

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111. The order of the over lapping of atomic orbitals is.....

A. s -s gt p - p gt s - p

B. p - p gt s - p gt s - s

C. s - s gt s - p gt p - p

D. s - p gt s - s gt p - p

Answer:

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112. Which of the following is correct order of repulsive interactions ?

A. L.P - L.P gt L.P - B.P gt B.P - B.P

B. L.P - B.P gt L.P - L.P gt B.P - B.P

C. B.P - B.P gt L.P - B.P gt L.P - L.P

D. Any of three depending upon the type of molecule

Answer:

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113. Which has the lowest bond angle ?

A. NH_3

B. BeF_3

C. H_3O+

D. CH_4

Answer:

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114. Ionic bond is absent in.....

A. NaCl

B. $AlCl_3$

C. MgO

D. H_2O

Answer:

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115. The bond angles in : $BeCl_2$, BF_3, H_2O

A. 180°,109^@28, 104^@31`

B. 180°, 120^@, 104^@31`

C. $109^\circ 28'$, 120°, 180°

D. $104^\circ 31$,$109^\circ 2$, 120°

Answer:

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116. Ionic bond is formed between IA group and VII A group, because

A. IA group anion & VII A group from cation

B. IA group cation & VII A group form anion

C. IA group cation & VII A group form cation

D. IA group anion & VII A group form anion

Answer:

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117. The electronic configuration of metal 'M' is $1s^2 2s^2 2p^6 3s^2\ 3p^6\ 4s^1$ and non- metal X is $1s^2\ 2s^2 2p^6 3s^2 3p^5$. The formula of ionic compound formed between these two elements is

A. MX

B. M_2X

C. MX_2

D. M_3X_2

Answer:

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118. The electronic configuration of four elements L, P, Q and R are given below.

L- $1s^2 2s^2 2p^4$

P- $1s^2 2s^2 2p^6 3s^1$

Q- $1^2 2s^2 2p^6 3s^2 3p^5$

R- $1s^2 2s^2 2p^6 3s^2$.

Which of the following are correct compounds formed by these elements?

A. L_2, P, RL, PQ, R_2Q

B. LP, RL, PQ, RQ

C. P_2L, RL, PQ, RQ_2

D. LP, R_2L, P_2Q, RQ

Answer:

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119. Number of electrons given by an atom of element in the formation of covalent bond is equal to:

A. number of valence electrons

B. total number of electrons

C. electrons required to get octet configuration

D. equal to number of atoms in a molecule

Answer:

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120. The order of repulsion of different types of electron pairs in valence shell of central atom in a molecule is.....

A. L.P - L.P > L.P - B.P > B.P - B.P

B. B.P - B.P > L.P - B.P > L.P - L.P

C. L.P - L.P > B.P - B.P > L.P. - B.P

D. B.P - B.P. > L.P - L.P > B.P. - L.P

Answer:

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121. What is the valence of IIIA group elements ? How can you say ?

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122. How do IIIA group elements form cations ?

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123. Which type of elements form aniona ? Give an example.

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124. In excited state, how many bonds do boran form with fluorine ?

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