CHEMISTRY WORK SHEET FOR GRADE-11STUDENTS(2018 E.C)

CHOOSE THE BEST ANSWER AMONG THE GIVEN ALTERNATIVE AND JUSTIFY YOUR ANSWER WITH EVIDENCES.

1. Chemical bonding occurs mainly to A. increase atomic number B. decrease PE .
C. increase reactivity D. increase mass

2. Atoms form bonds to achieve A. higher energy state B. noble gas configuration
C. more neutrons D. unstable structure

3. Which particles take part in chemical bonding? A. Protons B. Neutrons .
C .Valence electrons D. Nucleus

4. The outermost shell of an atom is called A.K shell B.L shell C.M shell D.Valence shell

5. Noble gases are chemically inert because they A. have high atomic mass
. B. have filled valence shells C. lack neutrons D. have zero electronegativity

6. Which element has one valence electron? A. Mg B. Na C. Al D. Ca

7. The octet rule is not obeyed by A. Carbon B. Oxygen C. Hydrogen D. Nitrogen

8. Atoms bond mainly to A. gain neutrons B. increase stability
. C. increase size D. lose nucleus

9. Which element needs two electrons to complete its octet?
. A. Nitrogen B. Oxygen C. Sodium D. Chlorine

10. Chemical bonds involve A. nuclear forces B. gravitational forces
C. electrostatic forces D. magnetic forces

11. The driving force of bond formation is A. increase in entropy B. decrease in energy

C. increase in pressure D. increase in temperature

12. Which atom is most stable? A. Na B. Cl C. Ne D. O

13. Valence electrons determine A. atomic mass B. bonding behavior C. neutron number D. isotopes

14. Which shell can hold a maximum of 8 electrons? A. K B. L C. M D. N

15. Which element has 7 valence electrons? A.Oxygen B. Nitrogen C.Fluorine D. Carbon

16. Bond formation results in A. higher potential energy B. lower stability C. lower potential energy D. unstable molecules

17. Which element commonly forms chemical bonds? A.Helium B.Neon C.Argon D. Sodium

18. The tendency of atoms to bond depends mainly on A. neutrons B. valence electrons C. mass number D. isotopes

19. Which particle has no charge? A. Electron B. Proton C. Neutron D. Ion

20. Which element has a complete octet? A. Na B. Mg C. Ne D. Al

21. Chemical bonding explains A. atomic structure only B. physical properties only C. chemical properties only D. physical and chemical properties

22. Stability of an atom increases when A. energy increases B. energy decreases C. neutrons increase D. atomic size increases

23. Valence shell electrons are involved in A. radioactivity B. nuclear fusion C. chemical reactionsm D. fission

24. Atoms bond because they are A. unstable alone B. heavy C. radioactive D. magnetic

25. Which element has 6 valence electrons? A. N B. O C. F D. C

26. Bonding electrons are usually A. core electrons B. inner shell electrons
. C. valence electrons D. paired electrons only

27. Noble gases rarely form bonds because A. they are heavy B. they have low ionization energy .
C. they have filled outer shells D. they are non-metals

28. Which element follows the octet rule most strictly? A. Hydrogen B. Boron C. Carbon .
D .Helium

29. Which element needs three electrons to complete octet? A. Boron B. Nitrogen C. Aluminum .
D. Oxygen

30. Chemical bonding occurs due to the A. attraction between nuclei B. attraction between . electrons C. attraction between opposite charges D. repulsion between atoms

31. Ionic bonding involves A. sharing of electrons B. transfer of electrons
. C. sharing of protons D. sharing of neutrons

32. Ionic bonds usually form between A. two non-metals B. two metals
. C. metal and non-metal D. noble gases

33. Sodium forms Na^+ ion by A. gaining one electron B. losing one electron
. C. gaining two electrons D. losing two electrons

34. Chlorine forms Cl^- ion by A. losing one electron B. gaining one electron
. C. losing two electrons D. gaining two electrons

35. Which compound is ionic? A. CO_2 B. NH_3 C. NaCl D. CH_4

36. Ionic bonds are due to A. covalent attraction B. electrostatic attraction . C. magnetic force D. hydrogen bonding

37. Ionic compounds are usually A. gases B. liquids C.crystalline solids D. amorphous solids

38. Which property is typical of ionic compounds? A. Low melting point B. High melting point .
C. Poor conductivity when molten D. Softness

39. Ionic compounds conduct electricity when A. solid B. gaseous C. molten or dissolved D. dry

40. Which ion is larger in size? A. Na^+ B. Mg^{2+} C. Al^{3+} D. Cl^-

41. Which element forms a cation easily? A. Oxygen B. Chlorine C. Sodium D. Sulfur

42. Which element forms an anion easily? A. Na B. Mg C. K D. F

43. Ionic compounds are brittle because A. ions move freely B. layers slide easily
. C. similar charges repel when shifted
D. bonds are weak

44. Which compound contains Ca^{2+} ions? A. $CaCl_2$ B. CaCl C. Ca_2Cl D. Ca_2Cl_2

45. The lattice energy of ionic compounds depends on A. ion charge and size
. B. color C. solubility D. shape

46. Which ion has the highest positive charge? A. Na^+ B. Mg^{2+} C. Al^{3+} D. Ca^{2+}

47. Ionic bonding forms A. molecules B. ions only C. crystal lattices D. chains

48. Ionic solids are hard because A. bonds are weak B. forces are strong . C. electrons are free D. molecules vibrate

49. Which compound is NOT ionic? A. KBr B. NaF C. HCl D. MgO

50. Which ion has the smallest radius? A. Na^+ B. Mg^{2+} C. Al^3 D. O^{2-}

51. Ionic bonding occurs due to A. sharing of valence electrons B. electron sea
. C. attraction of opposite ions D. hydrogen bonding

52. Which pair forms an ionic compound? A. H–H B. O–O C. Na–Cl D. N–N

53. Which element commonly forms +2 ions? A. Na B. Mg C. K D. Cl

54. Molten NaCl conducts electricity because A. electrons move B. ions are mobile
. C. molecules are polar D. atoms vibrate

55. Ionic compounds usually dissolve in A.non-polar solvents B.organic solvents C.water D.oil

56. Which force holds ions together in NaCl ? A. Hydrogen bonding B. Covalent bonding
. C. Electrostatic attraction D. Metallic bonding

57. Which ion has the largest radius? A. F^- B. O^{2-} C. Na^+ D. Mg^{2+}

58. Which property is NOT typical of ionic compounds? A. High melting point B. Brittleness
. C. Electrical conductivity in solid D. Crystalline nature

59. Ionic bonding results in formation of A. neutral atoms B. ions C. molecules D. radicals

60. Which compound has strongest ionic bond? A. NaCl B. KCl C. MgO D. CsI

61. Which factor increases ionic bond strength? A. Larger ions B. Smaller charge
. C. Larger charge D. Larger distance

62. Ionic compounds are usually A. soft B. malleable C. hard D. ductile

63. Which compound contains Al^{3+} ions? A. $AlCl_3$ B. AlCl C. Al_2Cl D. Al_2Cl_3

64. Ionic bonding is common in A. organic compounds B. metals only C. salts D. noble gases

65. Which ion is isoelectronic with neon? A. Na^+ B. Mg^{2+} C. F^- D. All of these

66. Ionic bonds are strongest when A. ions are large B. ions have low charge
. C. ions have high charge and small size D. atoms are neutral

67. Which compound is most soluble in water? A. NaCl B. CCl_4 C. CO_2 D. CH_4

68. Which element forms a +3 ion? A. Mg B. Al C. Na D. Ca

69. Ionic compounds are formed by A. overlap of orbitals B. electron delocalization
. C. electron transfer D. hydrogen bonding

70. Which property is explained by ionic bonding? A. Electrical conductivity of metals
. B. Hardness of salts C. Shape of molecules D. Polarity

71. Which compound is ionic and polar? A. CO_2 B. CH_4 C. NaCl D. O_2

72. The crystal structure of ionic compounds is due to A. directional bonding B. random .arrangement C. strong electrostatic forces D. covalent bonding

73. Which ion has lost three electrons? A. Na^+ B. Mg^{2+} C. Al^{3+} D. Ca^{2+}

74. Ionic compounds usually exist as A. molecules B. ions in gas phase C. solids D. liquids

75. Which element does NOT form ionic bonds easily? A. Na B. Mg C. Cl D. Ne

76. Covalent bonding involves A. electron transfer B. electron sharing
. C. proton transfer D. neutron sharing

77. Covalent bonds are common between A. metals B. metal and non-metal
. C. non-metals D. noble gases

78. Which compound is covalent? A. NaCl B. MgO C. H_2O D. KBr

79. A single covalent bond consists of A. one shared electron B. one shared pair of electrons
. . C. two shared pairs D. three shared pairs

80. Double covalent bond involves A. one pair B. two pairs C. three pairs D. four pairs

81. Triple bond contains A. one pair B. two pairs C. three pairs D. four pairs

82. Which molecule contains a double bond? A. H_2 B. O_2 C. CH_4 D. NH_3

83. Which molecule contains a triple bond? A. O_2 B. H_2O C. N_2 D. CO_2

84. Covalent compounds usually have A. high melting points B. low melting points . C. ionic lattices D. free ions

85. Covalent compounds are generally A. good conductors B. insoluble in water
. C. metallic D. crystalline

86. Which bond is strongest? A. Single B. Double C. Triple D. Hydrogen

87. Bond length decreases as A.bond order decreases B. atomic size increase . C.bond order increases D. electronegativity decreases

88. Polar covalent bond occurs when A.electronegativity difference is zero B. electrons are equally shared C.electronegativity difference is moderate D. electrons are transferred

89. Which bond is polar? A. H–H B. O–O C. H–Cl D. N–N

90. Which molecule is non-polar? A. H_2O B. NH_3 C. CO_2 D. HCl

91. Covalent bonding forms A. ions B. lattices C. molecules D. crystals

92. Coordinate covalent bond involves A. sharing of one electron each
. B. transfer of electrons C. one atom donating both electrons D. metallic bonding

93. Which species contains coordinate bond? A. H_2 B. NH_4^+ C. O_2 D. Cl_2

94. Covalent compounds usually do not conduct electricity because A. electrons are free . B. ions are absent C. molecules are large D. bonds are weak

95. Which molecule obeys the octet rule? A. BF_3 B. NH_3 C. SF_6 D. PCl_5

96. Which molecule violates the octet rule? A. CO_2 B. CH_4 C. BF_3 D. H_2O

97. Carbon usually forms A. two bonds B. three bonds C. four bonds D. five bonds

98. The shape of molecules is explained by A. octet rule B. Hund's rule C.VSEPR theory .
D. Aufbau principle

99. VSEPR theory is based on A. attraction of nuclei B. repulsion between electron pairs
. C. sharing of electrons
D. ion formation

100. Which molecule is linear? A. H_2O B. NH_3 C. CO_2 D. CH_4

101. Which molecule is tetrahedral? A. NH_3 B. CH_4 C. CO_2 D. $BeCl_2$

102. Which molecule is bent? A. CO_2 B. $BeCl_2$ C. H_2O D. CH_4

103. Lone pairs on central atom A. decrease repulsion B. increase repulsion C. form bonds D. reduce bond angle

104. Which molecule has a trigonal pyramidal shape? A. NH_3 B. CO_2 C. BF_3 D. $BeCl_2$

105. Which compound has polar covalent bonds but is non-polar overall? A. H_2O B. NH_3 C. CO_2 D. HCl

106. Covalent bonding involves overlap of A. nuclei B. shells C.atomic orbitals D.energy levels

107. Which molecule has maximum bond order? A. H_2 B. O_2 C. N_2 D. F_2

108. Which bond has the shortest length? A. C–C B. C=C C. C≡C D. C–H

109. Which compound is network covalent? A. NaCl B. Diamond C. H_2O D. NH_3

110. Covalent bonds are directional because A. electrons move freely . B.orbitals overlap in specific directions C. ions attract D. atoms vibrate

111. Which element rarely forms covalent bonds? A. Carbon B. OxygenC. Chlorine D. Sodium

112. Which molecule has zero dipole moment? A. H_2O B. NH_3 C. CO_2 D. SO_2

113. Bond polarity depends on A. atomic size B. electronegativity difference C. atomic mass .
D. neutron number

114. Which element is most electronegative? A. O B. Cl C. F D. N

115. Covalent compounds are generally A. brittle B. soft C. ductile D. malleable

116. Which molecule has trigonal planar shape? A. BF_3 B. NH_3 C. H_2O D. CH_4

117. Which molecule has two lone pairs on central atom? A.NH_3 B.CH_4 C.H_2O D.CO_2

118. Which compound shows resonance? A. NaCl B. O_3 C. H_2O D. NH_3

119. Resonance structures differ in A. atomic arrangement B. electron distribution
C. number of atoms
D. molecular mass

120. Covalent bonding usually occurs when A. electronegativity difference is large
B. electronegativity difference is small C. metals react D. ions form

121. Which molecule has the strongest covalent bond? A. H–H B. O–O C. N≡N D. Cl–Cl

122. Which compound is purely covalent? A. NaCl B. HCl C. H_2 D. KBr

123. Covalent bonds are strongest in A. gases B. liquids C. solids D. all states

124. Which element forms multiple bonds easily? A. Hydrogen B. Carbon C.Sodium D.Calcium

125. Which molecule contains both single and double bonds? A.H_2 B. O_2 C. CO_2 D. N_2

126. Which bond is least polar? A. C–H B. O–H C. H–F D. Na–Cl

127. Covalent compounds generally have A. high boiling points B. low boiling points
C. ionic lattices D. free ions

128. Which compound is covalent and polar? A. CO_2 B. H_2O C. O_2 D. N_2

129. Which element forms three covalent bonds? A. Carbon B. Nitrogen C. Oxygen D. Fluorine

130. Covalent bonding is strongest when A. bond length is long B. bond order is low
C. bond order is high D. electronegativity is zero

131. Metallic bonding involves A. shared electrons B. electron sea C. ion transfer D. H- bonding

132. In metals, valence electrons are A. fixed B. localized C. delocalized D. transferred

133. Metallic bonding explains A. brittleness B. malleability C. polarity D. solubility

134. Metals conduct electricity because A. ions move B. electrons are delocalized
C. protons move D. atoms vibrate

135. Which property is NOT due to metallic bonding? A. Ductility B. Malleability
C. Electrical conductivity D. Solubility in water

136. Intermolecular forces act A. within molecules B. between molecules
C. inside nucleus D. between atoms only

137. Hydrogen bonding occurs when hydrogen is bonded to A. C, H B. N, O, F

C. any element

D. metals

138. Which compound shows hydrogen bonding? A. CH_4 B. H_2O C. CO_2 D. NaCl

139. Hydrogen bonding is A. stronger than covalent bond B. weaker than covalent bond

C. ionic bond D. nuclear bond

140. Van der Waals forces are A. strong bonds B. weak intermolecular forces

C. ionic forces D. covalent bonds

141. Which intermolecular force is weakest? A. Hydrogen bonding B. Dipole–dipole

C. London dispersion D. Ionic

142. Boiling point increases with A. weaker forces B. stronger intermolecular forces

C. smaller molecules D. non-polarity

143. Which substance has the highest boiling point? A. H_2 B. N_2 C. O_2 D. H_2O

144. Dipole–dipole forces exist between A. non-polar molecules B. polar molecules . C. ions D. metals

145. Which molecule has only London forces? A. HCl B. NH_3 C. H_2 D. H_2O

146. Which force exists in all molecules? A. Hydrogen bonding B. Dipole–dipole . C. London dispersion D. Ionic

147. Intermolecular forces are generally A. stronger than covalent bonds B. weaker than covalent bonds C. equal to ionic bonds D. nuclear forces

148. Which intermolecular force is strongest? A. London dispersion B. Dipole–dipole C. Hydrogen bonding D. Metallic

149..Hydrogen bonding causes water to have A. low boiling point B. high boiling point
C. low cohesion D. low surface tension

150. Polarity of a molecule depends on A. atomic mass B. shape and bond polarity
C. number of atoms D. neutron number

151. Which molecule is polar? A. CO_2 B. CH_4 C. HCl D. O_2

152. Which molecule is non-polar due to symmetry? A. NH_3 B. H_2O C. CO_2 D. SO_2

153. Metallic bonding is strongest in metals with A.fewer valence electrons

B. more delocalized electrons C. larger atomic radius D. fewer atoms

154. Which substance has hydrogen bonding and covalent bonds?A.NaCl B. H_2O C.CO_2 D.MgO

155.Surface tension is due to A. ionic bonding B. metallic bonding C. intermolecular forces D. covalent bonding

156. Which element forms strongest hydrogen bonds? A. C B. N C. O D. F

157. Which bond is NOT intermolecular? A. Hydrogen bond B. Dipole–dipole C. London force D. Covalent bond

158. Alcohols have high boiling points due to A. dispersion forces B. metallic bonding
C. hydrogen bonding D. ionic bonding

159. Which molecule has zero dipole moment? A. H_2O B. NH_3 C. CO_2 D. HF

160. Which property depends strongly on intermolecular forces? A. Atomic number
B. Melting point C. Nuclear charge D. Proton number

161. Strong intermolecular forces result in A. low boiling point B. high boiling point
C. weak cohesion D. instability

162. Which bond involves electron sharing? A. Ionic B. Metallic C.Covalent D.Hydrogen

163. Which bond involves electron transfer? A. Covalent B. Hydrogen C.Metallic D. Ionic

164. Which bond involves delocalized electrons? A. Ionic B. Covalent C. Metallic D. Hydrogen

165. Which compound is held together by metallic bonding? A. NaCl B. Cu C.CO_2 D.H_2O

166. Which force is responsible for liquefaction of gases? A. Ionic B. Covalen . C. Intermolecular D. Metallic

167. Which molecule shows strongest hydrogen bonding? A.NH_3 B.HF C. H_2O D. CH_4

168. Which molecule experiences dipole–dipole forces? A. O_2 B. N_2 C. HCl D. H_2

169. Which compound has the highest surface tension? A.Ethanol B.Water C.Ether D. Hexane

170. Which force increases with molecular size? A. Hydrogen bonding B. Dipole–dipole C. London dispersion D. Ionic

171. Which molecule is most polar ? A. CO_2 B. CH_4 C. HF D. O_2

172. Which bond is least polar? A. C–H B. O–H C. H–F D. Na–Cl

173. Which substance has no hydrogen bonding? A. H_2O B. NH_3 C. HF D. H_2S

174. Metallic bonding explains A. hardness of salts B. conductivity of metals C. polarity of molecules D. shape of molecules

175. Which force explains viscosity? A. Ionic B. Metallic C. Intermolecular D. Nuclear

176. Which molecule has only dispersion forces? A. CO_2 B. H_2O C. NH_3 D. HF

177. Which intermolecular force exists between all atoms? A. Hydrogen bonding
B. Dipole–dipole C. London forces D. Ionic forces

178. Which property is NOT affected by bonding? A. Melting point B. Boiling point . C. Color D. Electrical conductivity

179. Which substance has the weakest intermolecular forces? A.H_2O B.NH_3 C.HFD.H_2

180. Which bond type gives ductility to metals? A.Ionic B. Covalent C. Metallic D. Hydrogen

181. Which molecule has strongest dipole–dipole force? A. HCl B. CO_2 C. H_2 D. O_2

182. Intermolecular forces are responsible for A. chemical reactions B. phase changes
C. ion formation D. nuclear decay

183. Which compound has highest boiling point due to hydrogen bonding?
A. CH_4 B. NH_3 C. H_2O D. CO_2

184. Which element contributes most to metallic bonding? A. Core electrons
B. Neutrons C. Valence electrons D. Protons

185. Which substance is held together by van der Waals forces only?A.NaCl B.H_2 C.H_2O D.NH_3

186. Which bond is strongest among chemical bonds? A. Ionic B. Covalent . C. Hydrogen D. Van der Waals

187. Which compound has no polarity at all? A. NH_3 B. H_2O C. CO_2 D. HF

188. Metallic bonding forms a A. molecule B. lattice of ions C. sea of electrons . D. hydrogen network

189. Which property of metals is due to metallic bonding? A. Solubility B. Transparency . C. Ductility D. Volatility

190. Which force holds noble gas atoms together in liquid state? A. Ionic B. Covalent . C. Metallic D. London dispersion

191. Which compound has strongest intermolecular forces? A. CH_4 B. NH_3 C. H_2O D. CO_2

192. Which molecule is least polar? A. HF B. HCl C. CO_2 D. NH_3

193. Which substance conducts electricity in solid state? A. NaCl B. Cu C. H_2O D. CO_2

194. Which compound is hardest? A. NaCl B. Diamond C. Graphite D. Ice

195. Which force explains capillary action? A. Covalent bonding B. Metallic bonding
C. Intermolecular forces D. Ionic bonding

196. Which type of bonding exists in graphite layers? A. Ionic B. Covalent and van der Waals . C. Metallic D. Hydrogen

197. Which molecule has highest polarity? A. HF B. HCl C. H_2O D. NH_3

198.Which bond is responsible for cohesion in water? A.Covalent B.Ioni C.Hydrogen D.Metallic

199. Which property of substances depends most on bonding type? A. Mass number
B. Density C. Melting point D. Atomic number

200. Chemical bonding primarily determines A. atomic nucleus B. isotopes
C. physical and chemical properties D. atomic mass

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