Student Name_____ Prof: Umair Ali Khan (www.umairkhanacademy.com) 03099164667

1) The bond between two identical non-metal atoms has a pair of electrons:
A) With identical spins B) Unequally shared b/w two atoms
C) Transferred fully from one atom to another
D) equally shared between them

2) Ionic compounds do not show the phenomenon of isomerism because the ionic bonds are
A) Directional & rigid. B) Non-directional & non-rigid.
C) Non-directional & rigid D) The entire above are true

3) The correct Order Of energy for molecules is;
A) $Cl_2 > Br_2 > F_2 > I_2$ B) $I_2 > Br_2 > Cl_2 > F_2$
C) $F_2 > Cl_2 > Br_2 > I_2$ D) $Cl_2 > I_2 > Br_2 > F_2$

4) Which of the following orders is true for boiling points?
A) $NaCl > CH_3CH_2OH > NH_3 > CH_3OCH_3$
B) $NaCl > CH_3CH_2OH > CH_3OCH_3 > NH_3$
C) $NaCl > CH_3CH_2OH > NH_3 > CH_3OCH_3$
D) $NaCl > CH_3CH_2OH > CH_3OCH_3 > NH_3$

5) Which one of the following is a linear molecule?
A) H_2O B) Cl_2O C) HCN D) C_2H_4

6) In which one of the following does the underlined atom not has eight electrons in its valence shell?
A) Li_2O (O=8) B) Na_2O (Na=11) C) H_2S (S=16) D) PCl_5 (P=15)

7) The reason for the planar geometry of BCl_3 and non-planar one for PH_3 is
a) B atom has no d-orbitals for bonding
b) B atom has six electrons around it in BCl_3 where P in PH_3 has eight.
c) The repulsion between chlorine atoms is greater than that between H atoms
d) The covalent radius Of P is greater than that of B

8) Which of the following statements about the properties associated with ionic and covalent is correct?
a) A covalent compound can't be an electrolyte.
b) The only covalent compounds with high melting points are those in which hydrogen bonds occur.
c) Any compound that contains both oxygen and hydrogen in its molecule forms a hydrogen bond
d) Ionic bonds and covalent bonds can both occur in the same compound.

9) The approximate value of the O-C-O angle in Ethanoic acid is
A) 90° B) 109° C) 120° D) 180°

10) Graphite used as a lubricant, diamond can't. This is because graphite has
A) Delocalized electrons. B) A hexagonal arrangement of atoms.
C) Covalent atoms between atoms in the layers.
D) Van der Waals' forces between the layers of atoms

11) Which one of the following pairs do they have similar shapes, in?
A) $AlCl_3$ and BCl_3 B) BF_3 and NH_3 C) $AlCl_3$ and PCl_3 D) $BeCl_2$ and H_2O

12) A solid melts sharply just above 100°C. It does not conduct electricity even when molten, it dissolves in hydrocarbons solvents. What is the structure of solid most likely to be?
A) An atomic crystal B) A giant molecular crystal
C) An ionic crystal D) A molecular crystal

13) Which of the following molecules will not form a hydrogen bond with another of its own molecules?
A) CH_3CHO B) CH_3OH C) CH_3NH_2 D) NH_3

14) Group II metals have higher melting points than Group I metals. Which factor could contribute towards the higher melting points?
a) There are smaller inter-atomic distances in the metallic lattices of the Group II metals.
b) Two valence electrons are available from each Group II metal atom for bonding the atom into the metallic lattice
c) Group II metals have the higher first ionization energies.
d) None of the above

15) Which Of the following Of aluminum chloride are related to the lack of an octet Of electrons in the aluminum atom in this compound
A) Its tendency to dimerize. B) Its acidity in aqueous solution.
C)Its covalent character. D)Its reaction with bases

16) Which of the following molecules has polar bonds but is non-polar as a whole?
A) HCl B) CO_2 C) NH_3 D) H_2O

17) Bonds present in $CuSO_4.5H_2O$ is
A) Electrovalent and covalent bonds
B) Electrovalent and coordinate bonds
C) Covalent and coordinate bonds
D) Electrovalent, covalent and coordinate covalent bonds

18) The shape of hydronium ion is H3O+, is
a) Planar b) See-saw c) trigonal planar d) trigonal pyramidal

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D Van der Waals' forces between the layers of atoms

29) the type of bonding present in a sample of sodium nitrate, NaNO3 are;
a) Covalent bonds only b) Ionic bond only
c) Ionic and metallic bonds d) Covalent and ionic bonds and coordinate covalent

30) What is the hybridization of phosphorus in PCl3?
a) Sp^2 b) Sp^3 c) sp d) sp^3d^2

31) Which one of the following statements about orbital hybridization is incorrect?
a) the nitrogen atom in NH_3 is sp^3 hybridized b) sp^2 hybrid orbitals are coplanar and at 120° to each other
c) the carbon atom in CO_2 is sp^2 hybridized d) sp hybrid orbitals lie at 180° to each other

32) The ratio of sigma and pi bonds in benzene is
a) 1:2 b) 1:6 c) 1:4 d) 1:6

33) In 1,3-butadiene the carbon is hybridized as
a) sp b) sp^2 and sp^3 c) sp^3 d) sp^2

34) The molecule having the highest bond energy is
a) N-N b) F-F c) C-C d) O-O

35) Which one of the following is the correct set with reference to molecular formula, hybridization of the central atom, and shape of the molecule?
a) CO2, sp^2, bent b) $BeCl_2$, sp, linear
c) H_2O, sp^2, bent d) H_2O, sp^3, linear

36) In all of the following molecules the central atom does not follow the octet rule except?
a) PCl_5 b) H_2SO_4 c) BF_3 d) None of these

37) H_2O is a polar molecule whereas BeF_2 is not. It is because
a) The electronegativity of F is greater than that of O
b) H_2O involves hydrogen bonding whereas BeF_2 is a discrete molecule
c) H_2O is angular and BeF_2 is linear d) H_2O is linear and BeF_2 is angular

38) Which type of bond is not present in the HNO_2 molecule?
a) Covalent b) ionic c) Coordinate d) Ionic as well as coordinate

39) Which of the following is true?
a) Bond energy ∞ 1/bond length ∞ Bond order
b) Bond energy ∞ Bond order ∞ Bond length
c) Bond energy ∞ 1/bond length ∞ 1/Bond order
d) Bond order ∞ Bond length ∞ bond energy

40) Which of the following statements about the bond is wrong?
a) Polar bonds are shorter than the non-polar ones
b) C-C bond length is smaller than S-S bond length
c) pi-bonding reduces the bond length
d) A single bond is shorter than a double bond

41) The formation of macromolecules is characteristics of
a) Covalent bond b) ionic bond
c) Coordinate covalent bond d) All of these

42) Predict the relative bond angles in BF_3 and SO_2
a) BF_3 bond angles > SO_2 bond angle
b) SO_2 bond angle > BF_3 bond angles
c) BF_3 bond angles = SO_2 bond angle
d) Relative bond angles cannot be predicted

43) The dipole moments of NH_3, HF, H_2O, and SO_2 are 1.44 D, 1.9 D, 1.84D, and 1.60 D respectively. The order of decreasing polarity is
a) $HF > SO_2 > H_2O > NH_3$ b) $H_2O > NH_3 > SO_2 > HF$
c) $HF > NH_3 > SO_2 > H_2O$ d) $HF > H_2O > SO_2 > NH_3$

44) What hybridization change does the carbon atom undergo in the combustion of methane?
a) sp –> sp2 b) sp3 –> sp c) sp2–> sp3 d) sp2 –> sp

45) Which of the following orbital shows the shortest bond length on overlapping?
a) sp b) sp^2 c) sp^3 d) P

46) Bond responsible for dipole moment is
a) ionic b) covalent c) coordinate covalent d) Metallic

47) Total number of sigma and pi bonds in 1,3-butadiene respectively are
a) 9,3 b) 9,2 c) 8,2 d) 4, 2

48) which type of bonding would be expected between S and Cl?
a) ionic b) non-polar covalent c) Polyionic d) polar covalent

49) Which formula represents a molecular substance?
a) CaO b) CO c) Li_2O d) Al_2O_3

50) How are bond length and bond energies related?
a) they are not related b) The lower the bond energy, the shorter the bond length
c) The higher the bond energy, the longer the bond length d) The higher the bond energy, the shorter the bond length

51) Which kinds of bonding can be found in a sample of H_2O?
a) both polar covalent and hydrogen bonds b) hydrogen bonds only
c) ionic and nonpolar hydrogen bonds d) Nonpolar covalent bonds only

52) Carbon tetrachloride has no net dipole moment because of
a) Similar electron affinities of carbon and chlorine
b) Its planar structure
c) similar sizes of carbon and chlorine atoms
d) Its regular tetrahedral structure

53) Which sequence of group 18 elements demonstrates a gradual decrease in the strength of the Van der Waals forces? All the choices are elements in the liquid state:
a) Ar, Kr, Ne, Xe b) Kr, Xe, Ar, Ne c) Xe, Kr, Ar, Ne d) Ne, Ar, Kr, Xe

54) On hybridization of one s and one p orbitals we get
a) Two mutually perpendicular orbitals b) Two orbital at 180°
c) Three orbital in a plane d) four orbitals directed tetrahedrally

55) Which substance is an example of a network solid?
a) Nitrogen dioxide b) Sulfur dioxide c) Carbon dioxide d) Silicon dioxide

56) Which bond has the greatest ionic character?
a) H—Cl b) H—N c) H—F d) H—O

57) The number of lone electron pairs in the Ne molecule is
a) 1 b) 2 c) 4 d) 3

58) Which of the following covalent bonds has the greatest polarity?
a) S-O b) Br-Br c) C-P d) B-O

59) Which compound contains no ionic bond?
a) CaO b) K_2O c) NH_4Cl d) CO

60) The forces of attraction that exist between nonpolar molecules are called
a) Van der Waals/ dispersion forces b) Ionic forces
c) Electrovalent bonds d) Covalent bonds

61) Which of the following occurs in an ionic bond?
a) Like-charged ions attract
b) Two atoms share more than two electrons
c) Oppositely charged ions attract
d) Two atoms share two electrons

62) The model for metallic bonding is known as——
a) The Rutherford model b) The quantum model
c) The electron sea model d) The electron cloud model

63) When H^+ forms bond with H_2O to form hydronium ion H_3O^+, this bond is called a coordinate covalent bond because
a) It forms an especially strong bond
b) The electrons are equally shared
c) both bonding electrons come from the oxygen atom
d) The oxygen no longer has eight valence electrons

64) The less the electronegativity difference between two bonded atoms, the greater the.....
a) Metallic character b) Ionic character
c) Covalent character d) Polar character

65) The melting points of molecular compounds are usually.....
a) Lower than those of ionic compounds b) Below zero
c) Equal to those of ionic compounds d) Higher than those of ionic compounds

66) Oxy-acids of halogens has the co-ordinate covalent bond between:
a) Hydrogen and oxygen b) Hydrogen and hydrogen
c) Halogens and oxygen d) Oxygen and oxygen

67) Which of the following has a perfect triangular structure?
a) CO_2 b) NO c) PH_3 d) SO_3

68) Limitation of valance bond theory (VBT) is that:
a) It doesn't address the shapes of the molecules
b) It doesn't involve the criteria of bond formation
c) It doesn't involve the concept of valency
d) none of the above

69) End to end overlapping of orbitals give rise to the formation of:
a) Sigma bond b) Metallic bond
c) Pi bond d) Coordinate covalent bond

70) Side by side overlapping of orbitals gives rise to the formation of:
a) Sigma bond b) Metallic bond c) Pi bond d) Ionic bond

71) In sp^3 hybridized orbital, the s character is:
a) 25% b) 75% c) 50% d) 100%

72) Dipole moment gives the information about:
a) % ionic character b) The geometry of the molecules
c) Bond angles d) All of the above

73) Bonding affects properties like:
a) Solubility b) Reaction kinetics
c) Melting, boiling points, and isomerism d) All of these

74) In sp^2 hybridized orbital, the s character is__.
a) 11.11% b) 33.33% c) 22.22% d) 44.44%

75) The bond order of nitrogen molecule and neon:
a) 2 and 1 b) 3 and 0 c) 0 and 3 d) 2 and 0

76) Which of the following blocks will have comparatively higher electron affinity?
a) s block b) f block c) p block d) d block

77) Which one of the following has the maximum number of sp2 carbon atoms:
a) Benzene b) Methane c) CCl_4 d) Ethene

78) The process in which the orbitals of different energies and shape mix with each other to give equivalent hybrid orbitals is called:
a) Dissolution b) Hybridization c) Resonance d) Ionization

79) The structure of water is:
a) Trigonal b) Angular c) Linear d) Tetragonal

80) In a crystal, cations and anions are held together by:
a) Sharing of electrons b) Nuclear forces
c) Electrostatic forces d) Electrons

81) Ionic compounds are obtained by the combination of groups
a) 3 and 5 b) 1 and 7 c) 2 and 5 d) 4 and 8

82) In a double bond connecting 2 atoms, there is a sharing of
a) 1 electron b) 2 electrons c)3 electrons d) two-electron pairs

83) F_2 molecule is formed by the overlap of
a) s-s orbital b) s-p orbital c) p-p head-on overlapping of orbitals
d) p-p parallel overlapping of orbitals

84) Which of the following compounds has a non-directional bond?
a) BF3 b) KBr c) $MgCO_3$ d) NF_3

85) The structure of CrO^{-2} is:
a) Tetrahedral b) Octahedral c) Cubic d) Triclinic

86) Number of electrons shared in SF_6 molecule is.
a) 4 b) 6 c) 8 d)12

87) The following molecules has a linear structure except?
a) CS_2 b) SO_2 c) CO2 d) $BeCl_2$

88) Which of the following species has lone pair of electrons on the central atom?
a) CH_4 b) NH^+ c) PCl_5 d) PCl_3

89) The shape of H_3O+ is:
a) Tetrahedral b) Angular c) Pyramidal d) Trigonal planar

90) Which pair has trigonal planar geometry?
a) NH_3, PH_3 b) H_2O, C_2H_2 c) BF_3, AlH_3 d) CO_2, SO_2

91) Which of the following statements is not correct?
a) The double bond is stronger than the single bond
b) σ bond is stronger than π bond
c) The triple bond is shorter than a double bond
d) σ bond is weaker than π bond

92) A molecule in which the distance between two carbon atom is largest is. a) Ethane b) Ethene c) Ethyne d) Benzene

93) All the metals shine when they are freshly cut. The reason is
a) The conductivity of the metal is increased
b) The process of cutting gives energy to the metal atoms
c) The electron becomes less delocalized according to valance bond theory
d) The electrons are excited at higher energy levels and emit the photons when they fall back

94) Total number of valance electrons of a nitrogen atom in an ammonium ion is
a) 6 b) 10 c) 8 d) 16

95) Which compound has 100% ionic character
(a) NaCl (b) CsF (c) CsCl (d) None of these

96) Coordinate covalent bond is present in
(a)H_2O (b) H_3O+ (c) HCl d) none of these

97) Which of the following molecules has zero dipole moment?
(a)NH_3 (b) $CHCl_3$ (c) H_2O (d) BF_3

98) Which compound has both ionic and covalent bonds
(a) C_2H_5OH (b) $MgCl_2$ (c) H_2 (d) KCN

99) Ionic and co-ordinate covalent bonds are present in:
(a)SO_2 (b) NH_4Cl (c) C_2H_2 (d) H_2O

100) The highest electronegative element in the periodic table is:
(a) Oxygen (b) Nitrogen (c) Chlorine (d) Fluorine

101) Excluding H and He which has smallest size
(a) Be (b) N (c) Li (d) F

102) The number of bonds in nitrogen molecule is:
(a)one δ and one π (b)one δ and two π (c)three sigma only
(d)two δ and two π

103) Which of the hydrogen halides has the highest percentage of ionic character?
(a) HF (b) HBr (c) HCl (d) HI

104) When difference of electronegativity between two bonded atoms is 1.7, then the % age of ionic character is
(a) 100 % (b) 50 % (c) 72 % (d) 92 %

105) Which element has highest ionization energy?
a) Li b) Be c) B d) Na

106) The octet rule is not followed in the formation of
a) NF_3 b) CF_4 c) CCl_4 d) PCl_5

107) Which compound has ionic bond in it
a) NaF b) HCl c) H_2O d) NH_3

108) Coordinate Covalent bond is present in the following acid:
(a) Phosphoric acid (b) Carbonic acid (c) Nitric acid (d) Sulphuric acid

109) In H_3O^+, the covalent bond is in the following percentage:
(a) 60% (b) 33% (c) 66% (d) 50%

110) In H_3O^+, the coordinate covalent bond is in the following percentage:
(a) 33% (b) 30% (c) 60% (d) 66%

111) Following one is the Non-Metallic atom:
(a) Zinc (b) Mercury (c) Carbon (d) Aluminum

112) A force which holds two or more atoms or ions together is called as:
(a) Ionic bond (b) Covalent bond (c) Hydrogen bond (d) Chemical bond

113) Chemical reactivity of elements depends upon:
(a) Electronic configuration (b) Unstable nature (c) Energy states (d) Atomic number

114) Bond angle among the molecule of Beryllium chloride is:
(a) 120degree (b) 104degree (c) 180degree (d) 109degree

115) Covalent bond is developed when:
(a) Partially filled orbitals come close to each other
(b) Molecular orbitals overlap with each other
(c) Partially filled orbitals must overlap with each other
(d) First and third statements are seemed to be relevant

116) Number of partially filled orbitals in fluorine is:
(a) One (b) Two (c) Three (d) Four

117) Covalent bond as a result of side to side overlap is considered as:
(a) Relatively a strong covalent bond (b) Relatively a weak covalent bond
(c) May be Sigma bond is developed (d) All is incorrect statements

118) Chemical reactivities of elements depend upon their characteristic.
a) Stability measures b) Chemical bonding
c) Size ratios d) Electronic configuration

119) Which group of elements show little tendency to react chemically?
a) Alkali metals b) Halogens c) Noble gases d) Rare earth metals

120) A noble gas does not react with another.
a) Noble gas b) Material gas c) Poison gas d) Water gas

121) Which is the most stable of all the elements?
a) Fluorine b) Nitrogen c) Helium d) Nitrogen

122) According to VSEPR theory, geometry of molecules developed by participation of.
a) Half filled orbitals b) Filled orbitals c) Lone pair & bond pair d) Roaming electrons

123) Bond pair electrons are compressed by the repulsions of.
a) Non bonding electron b) Lone pair electron c) Both d) Neighboring electron

124) Which electron pair spreads its electronic charge more in space?
a) Lone pair b) Bond pair c) Filled pair d) Half filled

125) Bond angle developed in AB_2 type molecule is.
a) 120degree b) 90degree c) 180degree d) 150 degrees

126) CCl_4 possesses following bond angles.
a) 120degree b) 109.5degree c) 107.5degree d) 104.5 degrees

127) Which is perfect triangular in shape?
a) NH_3 b) SO_3 c) H_2S d) CO_2

128) The state of hybridization of carbon atom in methane is:
(a) sp (b)sp^2 (c)sp^3 (d)none

129) The state of hybridization of boron atom in BF_3 is:
(a) sp (b)sp^2 (c)sp^3 (d)none

130) The state of hybridization of beryllium atom in $BeCl_2$ is:
(a) sp (b)sp^2 (c)sp^3 (d)none

131) Geometry of sp^3 hybridized orbital is
(a)tetrahedral (b)triangular planar (c)Linear (d) none of these

132) Geometry of sp^2 hybridized orbital is
(a)tetrahedral (b)triangular planar (c)Linear (d) none of these

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136) Bond angle in NH_3 is
(a) 109.5° (b) 107.5° (c) 104.5° (d) 92°

137) Bond angle in NF_3 is
(a) 109.5° (b) 107.5° (c) 102° (d) 95°

138) Bond angle in H_2S is
(a) 109.5° (b) 107.5° (c) 104.5° (d) 92°

139) Bond angle in sp hybridized orbitals is
(a) 109.5° (b) 120° (c) 180° (d) 90°

140) Which set of hybrid orbitals has tetrahedral shape?
(a) SP^3 (b) SP (c)SP^2 (d) dSP^2

141) The bond angle in H_2O is
(a) 109.5° (b) 107.5° (c) 104.5° (d) 102.5°

142) In NH_3, the covalent bond is due to:
(a) S−sp overlap (b) S-sp^2 overleap (c) S−Sp^3 overlap (d) None

143) The pair having similar geometry is:
(a) NH_3, PH_3 (b) H_2O, C_2H_2 (c) CO_2, SO_2 (d) BF_3, NH_3

144) In Al_2O_3, the ratio between the ions are:
(a) 1:2 (b) 2:1 (c) 2:3 (d) 3:2

145) Which of the following molecules has a co-ordinate covalent bond:
(a) NH_4Cl (b) NaCl (c) HCl (d) $AlCl_3$

146) In SP hybrid orbital S character should be.
(a)50% (b)60% (c) 66.3% (d)25%

147) VSEPR theory explains the shapes of molecules for.
(a) non-transition elements (b)Transition elements
(c)Alkali metals (d)NA elements

148) Triple bond behaves as single bond in which theory?
(a) VSEPR Theory (b) Molecular orbital theory
(c) Valence bond theory (d) All of these

149) Which one of the following does not obey the octate rule?
(a) H_2O (b) SO_3 (c) PCl_5 (d) Both b and c

150) Which one of the following has the highest bond order
(a) O^{+1} (b) O^{+2} (c) O^{-1} (d) O^{-2}

151) The bond distance is-------- and bond energy is Kj/mol for hydrogen
a) 75.4 m, 436.45 b)75.4 cm, 436.45
c) 25.4 nm,436.45 d) 75.4 pm, 436.45

152) Noble gases have maximum stability and the least reactivity because
a) They are very safe b) they valence shell is complete
c) they are gases d) they are preset zero group

153) The most stable elements are
a) Halogens . b) lithium family c) noble gases d) none of these

154) When atoms form bonds, the potential energy of the molecule
a) Decreases b) increases c) no change d) all of these

155) Magnitude of potential energy for attractive forces --------is and for repulsive forces is-------
a) smaller, greater b) greater, smaller
c) both are smaller d) both are greater

156) A bond is not formed when repulsive forces are than attractive forces.
a) Greater b) smaller c) no relation d) none of these

157) Formation of chemical bond takes place when
a) Energy is absorbed b) Forces of repulsion overcome forces of attraction c) Forces of attraction are equal to forces of repulsion
d) Forces of attraction overcome forces of repulsion

158) Which of the following will not have their covalent radii equal to half of their inter-atomic distance?
a) H_2 b) Cl_2 c) HI d) O_2

159) Many physical and chemical properties of atoms are related to
a) atomic size / atomic radii b) ionic radii/ covalent radii
c) all of these d) none of these

160) The decrease in atomic radii is very prominent in period but less in higher.
a) First b) second c) third d) fourth

161) Which of the following will be greater in size?
a) Al b) Al^+ c) Al^{+2} d) Al^{+3}

162) Which of the following will be greater in size?
a)N b) N^{-1} c) N^{-2} d) N^{-3}

163) Which of the following factors will increases from left to right and degrease down group in the periodic table?
a) Ionization energy b) Electron affinity
c) Electronegativity d) all of these

164) Second ionization energy of an atom is than the first one.
a)Smaller b) greater c) equal to d) none of these

165) Which of the following remains same along the period?
a) Nuclear charge b) shielding effect
c) atomic size d) none of these

166) Many physical and chemical properties of atoms are related to?
a) atomic size b) ionic radius c) both a and b d) none of these

167) Ionization energy is the ---------- measure of of an isolated atom
a) qualitative ,reactivity b) quantitative ,stability
c) stability ,reactivity d) none of these

168) Bond will be ionic if E.N difference is
a) greater than 1.7 b) less than 1.7
c) equal to 1.7 d) none of these

169) Which groups of periodic table show abnormal trend in ionization energy?
a) IIA&VA b) IIIA&VIIIA c) IIA,VA&VIIIA d) none of these

170) Which of the foll0wing is not the property of an isolated atom
a) ionization energy b) electron affinity
c) electronegativity d) none of these

171) Ionic compounds are mostly obtained by combination of groups
a) 3&5 b) 2&5 c) 4&8 d) 1&7

172) Total number of bonds in C2H4 are
a) 4 b) 5 c) 6 d) 8

173) VSEPR theory was developed by
a) Nylholm b) Gillespie c) Sedgwick and Powell d) both a and b

174) A molecule with two bond pairs and one lone pair has structure of
a) linear b) bent c) trigonal d) tetrahedral

175) Molecules with linear structure
a) CO_2 b) $BeCl_2$ c) CO d) all of these

176) Which is wrong about sigma bond
a) formed by head to head overlap b) stronger than pi-bond
c) more reactive than pi-bond d) sigma electrons are localized

177) Which will show greater overlap
a) s-s b) s-p c) p-p d) none of these

178) Which one is wrong about VBT
a) tells about geometry b) tells about bond order c) tells about bond formation d) none of these

179) Which of the following has least bond energy?
a) HCl b) HBr c) HI d) HF

180) C-C bond length is smallest in
a) alkanes b) alkynes c) alkenes d) none of these

181) Dipole moment is a quantity
a) scalar b) vector c) both d) none of these

182) 1 Debye = ---------
a) $6.336x10^{-30}$mC b) $3.336x10^{-30}$mC
c) $6.663x10^{-30}$mC d) none of these

183) Which of the following do not has zero dipole moment?
a) CO_2 b) CS_2 c) CH_4 d) CO

184) S.I unit of dipole moment is
a) Debye b) mC c) mC^{-1} d) $m^{-1}C$