CHEMISTRY

RESONANCE ENGLISH

CHEMICAL BONDING

Physical Chemistry Atomic Equilibrium

1. The correct order of dipole moment is .

A. x

B. $4x$

C. $x/4$

D. $2x$

Answer: 2

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2. Which of the following is not correct ?

A. $\frac{16}{\lambda_1} = \frac{9}{\lambda_2}$

B. $\frac{16}{\lambda_2} = \frac{3}{\lambda_1}$

C. $\frac{4}{\lambda_1} = \frac{1}{\lambda_2}$

D. $\frac{16}{\lambda_1} = \frac{3}{\lambda_2}$

Answer: 2

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3. Correct order of bond length is:

A. $3s$

B. $2p$

C. $2s$

D. $1s$

Answer: 4

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4. Which of the following is paramagnetic ?

A. 1

B. 2

C. 0

D. 4

Answer: 2

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5. Gaseous SO_3 molecule

A. is planner triangular in shape with three σ- bonds from sp2-p overlap and three π- bonds formed by two pπ-pπ overlap and one pπ-dπ overlap.

B. is planner triangular in shape with three σ- bonds from sp2-p overlap and three π- bonds formed by one pπ-pπ overlap and two pπ-dπ overlap.

C. is a pyramidal molecule with one double bond and two single bonds

D. planner triangular in shape with two double with two double bonds between S and O and one single bond

Answer: 3

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6. Among the following, the pair in which the two species are not iso-structural is

A. IO_3^- and XeO_3

B. AlH_4^- and PH_4^+

C. AsF_6^- and SF_6

D. SiF_4 and SeF_4

Answer: 1

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7. The correct order of $C-N$ bond length in the given compounds is :

$P: CH_3CN \quad Q: HNCO \quad R: CH_3CONH_2$

A. P>Q>R

B. P=Q=R

C. R>Q>P

D. R>P>Q

Answer: 2

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8. The correct order of increasing s-character (in percentage) in the hybrid orbitals of following molecules/ions is : (I)CO_3^{2-} (II)XeF_4 (III) I_3^- (IV) NCl_3 (V) $BeCl_2$

A. $1.37 \times 10^6 Hz$

B. $1.37 \times 10^5 Hz$

C. $1.37 \times 10^7 Hz$

D. $2.74 \times 10^5 Hz$

Answer: 1

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9. Two types of carbon — carbon covalent bond lengths are present in

A. diamond

B. graphite

C. C60

D. benzene

Answer: 1

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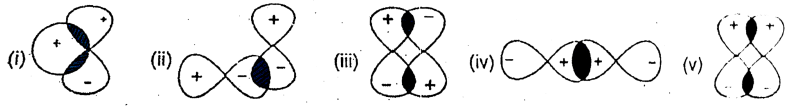
10. Which of the following atomic orbitals overlapping are not allowed



(1) All (2) (i) (ii) (iii) (3) (i) (iii) (v) (4) (ii) only

A. All

B. (i) (ii) (iii)

C. (i) (iii) (v)

D. (ii) only

Answer: 3

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11. In which of the following molecules, bonding is not taking place in excited state :

A. $54.4eV$

B. $122.4eV$

C. $244.8eV$

D. $108.8eV$

Answer: B

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12. A sigma bond may be formed by the overlap of two atomic orbitals of atoms A and B. If the bond is formed along the $x-$ axis, which of the following overlaps is acceptable ?

A. s orbital of A and pz orbital of B

B. px orbital of A and py orbital of B

C. pz orbital of A and Px orbital of B

D. px orbital of A and s orbital of B

Answer: 1

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13. According to Molecular orbital theory which of the following is correct ?

A. $LUMO$ level for C_2 molecule is a $\sigma 2p$ orbital

B. In C_2 molecule both the bonds are π bonds

C. In C_2^{2-} ion there is one $\sigma$and two π bonds

D. all the above are correct.

Answer: 1

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14. Which of the following is ionic solid :

A. XeF6(s)

B. PBr5(s)

C. CaC2(s)

D. All of these

Answer: 2

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15. Graphite is a soft solid lubricant extremely difficult to melt.

The reason for this anomalous behaviour is that graphite

A. $\lambda_H > \lambda_D > \lambda_r$

B. $\lambda_H = \lambda_D = \lambda_r$

C. $\lambda_H < \lambda_D < \lambda_r$

D. $\lambda_H < \lambda_D > \lambda_r$

Answer: 1

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16. Incorrect order about bond angle is :

A. $H_2O > H_2S > H_2Se > H_2Te$

B. $C_2H_2 > C_2H_4 > CH_4 > NH_3$

C. $SF_6 < NH_3 < H_2O < OF_2$

D. $ClO_2 > H_2O > H_2S > SF_6$

Answer: B

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17. The correct order of stability to form ionic compounds among Si^{4+}, Al^{3+}, Mg^{2+}, and Na^{+} is :

A. Si4+>Al3+>Mg2+>Na+

B. Al3+>Si4+>Mg2+>Na+

C. Na+>Si4+>Mg2+>Al3+

D. Na+>Mg2+>Al3+>Si4+

Answer: 3

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18. The hybridisation of the central atom

in the following species NF_3, BF_3, PF_5 is :

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19. Which of the following arrangements is correct on the basis of the increasing $p-$ character of the hybrid orbitals of the central atoms in the followings :

$(I)ClO_2^-$ $(II)CS_2$ $(III)SnCl_2$

A. Potential energy of electron $\propto \frac{Z^2}{n^2}$

B. The product of velocity of electron and principle quantum number $(n) \propto Z^2$

C. Frequency of revolution of electron in an orbit $\propto \frac{Z^2}{n^3}$

D. Coulombic force of attraction on the electron $\propto \frac{Z^2}{n^2}$

Answer: 3

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20. Which of the following are iso-electronic as well as iso-structural ?

$NO_3^-, CO_3^{2-}, ClO_3^-, SO_3$

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21. Which of the following is a planar molecule ?

A. XeO_2F_2

B. $XeOF_2$

C. XeF_4

D. XeF_6

Answer: 4

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22. Which one of the following represents the INCORRECT decreasing order of bond angles ?

A. $CO_2 > BF_3 > CH_4 > H_2O$

B. $NO_2^+ > NO_2 > NO_2^-$

C. $BCl_3 > PCl_3 > AsCl_3 > BiCl_3$

D. $IO_3^- > BrO_3^- > ClO_3^-$

Answer: 4

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23. How many P-O-P bonds appear in cydotrimetaphosphoric acid?

A. $5.2 \times 10^{-8} m$

B. $5.2 \times 10^{-7} m$

C. $5.2 \times 10^{-6} m$

D. $5.2 \times 10^{-9} J$

Answer: 1

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24. In which of the following molecule / ion all the bonds are equal?

A. SiF_4

B. IF_7

C. ClF_3

D. PCl_5

Answer: 3

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25. Which of the following options with respect to increasing bond order is correct ?

A. $NO < C_2 < O_2^- < B_2$

B. $C_2 < NO < B_2 < O_2^-$

C. $B_2 < O_2^- < NO < C_2$

D. $B_2 < O_2^- < C_2 < NO$

Answer: B

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26. The boiling point of CCl_4 higher than that of $CHCl_3$ because :

A. $937.3Å$

B. $1025Å$

C. $1236Å$

D. None of these

Answer: 1

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27. Which of the following statements are correct ?

(I) In ICl_2, ClF_3 and $TeCl_4$, the number of lone pair(s) of electrons on central atoms are 3, 2 and 1 respectively.

(II) Amongst $CO, CO_2, CO_3^{2-}, CH_3OH$ the correct order from the weakest to the strongest carbon $-$ oxygen bond $\equiv CH_3OH < CO_3^{2-} < CO_2 < CO$.

(III) The hybridisation of boron in BF_3 is the same which nitrogen has in $ClNO$ molecule.

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28. Which of the following species shows intramolecular hydrogen bonding ?

A. H_(2)O

B. HF

C. 

D. $CCl_3CH(OH)_2$

Answer: 4

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29. Anhydrous $AlCl_3$ is covalent from the data given below, perdict whether it would remain covalent or between ionic in aqueous solution

IE_1 of $Al = 5140kJmol^{-1}$

$\Delta_{\text{hyd}}H^{\ominus}\left(Al^{3+}\right) = -4665kJmol^{-1}$

$\Delta_{\text{hyd}}H^{\ominus}\left(Cl^{\ominus}\right) = -380kJmol^{-1}$

A. 7

B. -6

C. 6

D. -7

Answer: 4

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30. In terms of the molecular orbital theory , which of the following species will most likely be the one to gain an electron to form thermodynamically more stable species?

A. CN

B. NO

C. O_2^{2+}

D. N_2

Answer: 3

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31. Which of the following statements are correct?

(I) N_2H_4 is pyramidal about each N atom.

(II) NH_2OH is pyramidal about the N atom and bent about the O atom.

(III) CH_3COCl is trigonal planar about the carbon atom (attached to O and Cl).

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32. Which of the following statement is / are true ?

A. Based on VSEPR theory, the number of 90 degree $F-Br$ angles in BrF_5 is four.

B. Molecular geometries of both $(CH_3)_3N$ and $(SiH_3)_3N$ are trigonal planar.

C. The $C-C$ bond length in C_2 is larger than $O-O$ bond length O_2.

D. For ozone molecule, one oxygen $-$ oxygen bond is stronger than the other oxygen $-$ oxygen bond.

Answer: 1

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33. The maximum number of atoms which lie in the same plane in B_2H_6 molecule is :

A. 210

B. 204

C. 100

D. 300

Answer: 2

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34. Arrange the following compounds in increasing order of their ionic character :

$SnC_2, SnCl_4, SiCl_4, SnF_4, SnF_2$

A. $3Å$

B. $5.33Å$

C. $6.88Å$

D. $48Å$

Answer: 3

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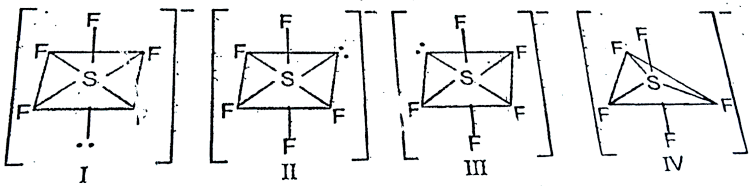
35. The shape of SF_5 can be :



A. 25

B. 50

C. 75

D. 80

Answer: A

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36. In terms of polar character, which one of the following order is correct?

A. $H-$ atom

B. He^+ ion

C. Li^{2+} ion

D. Be^{3+} ion

Answer: 2

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37. O_2F_2 is an unstable yellow change solid and H_2O_2 is a colourless liquid, both have $O-O$ bond and $O-O$ bond length in H_2O_2 and O_2F_2 respectively is :

A. 16

B. 24

C. 8

D. 20

Answer: 3

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38. The state of hybridisation of central atom in dimer of BH_3 and BeH_2 IS :

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Inorganic Chemistry Chemistry Bonding

1. The correct order of dipole moment is .

A. $HF > HCl > HBr > Hl$

B. $CH_3 - F > CD_3 - F$

C. $SO_3 > SO_2$

D.

$$CH_3 - CH = CHCl(\text{cis}) > CH_3 - CH = CHCI(\text{trans})$$

Answer: 1

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2. Which of the following is not correct ?

A. Carbon $-$ carbon bond length in CaC_2 will be more than that in CH_2CCH_2

B. $O-O$ bond length in Na_2O_2 will be more than that in KO_2.

C. $O-O$ bond length in $O_2[PtF_5]$ will be less than in KO_2

D. $N-O$ bond length in NO gaseous molecule will be smaller than that bond length in $NOCl$ gaseous

molecule.

Answer: 1

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3. Correct order of bond length is:

A. $SO_3^{2-} > SO_4^{2-} > SO_3$

B. $SO_4^{2-} > SO_3^{2-} > SO_3$

C. $SO_3 > SO_3^{2-} > SO_4^{2-}$

D. None of these

Answer: 1

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4. Which of the following is paramagnetic ?

A. O_2^-

B. CN^-

C. CO

D. NO^+

Answer: 1

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5. Gaseous SO_3 molecule

A. is planner triangular in shape with three σ- bonds from sp2-p overlap and three π- bonds formed by two

pπ–pπ overlap and one pπ–dπ overlap.

B. is planner triangular in shape with three σ– bonds from sp2–p overlap and three π– bonds formed by one pπ–pπ overlap and two pπ–dπ overlap.

C. is a pyramidal molecule with one double bond and two single bonds

D. planner triangular in shape with two double with two double bonds between S and O and one single bond

Answer: 2

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6. Among the following, the pair in which the two species are not iso-structural is

A. IO_3^- and XeO_3

B. AlH_4^- and PH_4^+

C. AsF_6^- and SF_6

D. SiF_4 and SeF_4

Answer: 4

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7. The correct order of $C-N$ bond length in the given compounds is :

$P: CH_3CN \quad Q: HNCO \quad R: CH_3CONH_2$

A. P>Q>R

B. P=Q=R

C. R>Q>P

D. R>P>Q

Answer: 3

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8. The correct order of increasing s-character (in percentage) in the hybrid orbitals of following molecules/ions is : (I)CO_3^{2-} (II)XeF_4 (III) I_3^- (IV) NCl_3 (V) $BeCl_2$

A. $II < III < IV < I < V$

B. $II < IV < III < V < I$

C. $III < II < I < V < IV$

D. $II < IV < III < I < V$

Answer: A

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9. Two types of carbon $-$ carbon covalent bond lengths are present in

A. diamond

B. graphite

C. C60

D. benzene

Answer: C

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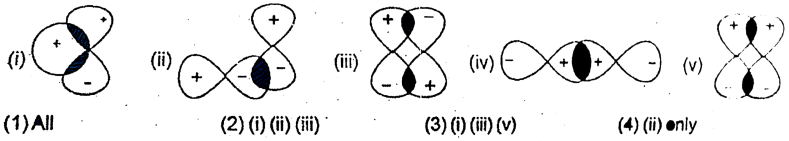
10. Which of the following atomic orbitals overlapping are not allowed



A. All

B. (i) (ii) (iii)

C. (i) (iii) (v)

D. (ii) only

Answer: 2

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11. In which of the following molecules, bonding is not taking place in excited state :

A. CH_4

B. BF_3

C. IF_7

D. PCl_3

Answer: 4

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12. A sigma bond may be formed by the overlap of two atomic orbitals of atoms A and B. If the bond is formed along the $x-$ axis, which of the following overlaps is acceptable ?

A. s orbital of A and pz orbital of B

B. px orbital of A and py orbital of B

C. pz orbital of A and Px orbital of B

D. px orbital of A and s orbital of B

Answer: 4

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13. According to Molecular orbital theory which of the following is correct ?

A. $LUMO$ level for C_2 molecule is a $\sigma 2p$ orbital

B. In C_2 molecule both the bonds are π bonds

C. In C_2^{2-} ion there is one $\sigma$and two π bonds

D. all the above are correct.

Answer: 4

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14. Which of the following is ionic solid :

A. XeF6(s)

B. PBr5(s)

C. CaC2(s)

D. All of these

Answer: 4

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

A. is a non- crystalline substance.

B. is an allotropic form of diamond

C. has molecules of variable molecular masses like polymers

D. has carbon atoms arranged in large plates of rings of strongly bound carbon atoms with weak interplate bonds.

Answer: 4

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16. Incorrect order about bond angle is :

A. $H_2O > H_2S > H_2Se > H_2Te$

B. $C_2H_2 > C_2H_4 > CH_4 > NH_3$

C. $SF_6 < NH_3 < H_2O < OF_2$

D. $ClO_2 > H_2O > H_2S > SF_6$

Answer: 3

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17. The correct order of stability to form ionic compounds among Si^{4+}, Al^{3+}, Mg^{2+}, and Na^{+} is :

A. Si4+>Al3+>Mg2+>Na+

B. Al3+>Si4+>Mg2+>Na+

C. Na+>Si4+>Mg2+>Al3+

D. Na+>Mg2+>Al3+>Si4+

Answer: 4

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18. The hybridisation of the central atom

in the following species NF_3, BF_3, PF_5 is :

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19. Which of the following arrangements is correct on the basis of the increasing $p-$ character of the hybrid orbitals of the central atoms in the followings :

$(I)ClO_2^-$ $(II)CS_2$ $(III)SnCl_2$

A. $I > III > II$

B. $II > I > III$

C. $I > II > III$

D. $III > I > II$

Answer: A

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20. Which of the following are iso-electronic as well as iso-structural ?

$NO_3^-, CO_3^{2-}, ClO_3^-, SO_3$

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21. Which of the following is a planar molecule ?

A. XeO_2F_2

B. $XeOF_2$

C. XeF_4

D. XeF_6

Answer: 3

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22. Which one of the following represents the INCORRECT decreasing order of bond angles ?

A. $CO_2 > BF_3 > CH_4 > H_2O$

B. $NO_2^+ > NO_2 > NO_2^-$

C. $BCl_3 > PCl_3 > AsCl_3 > BiCl_3$

D. $IO_3^- > BrO_3^- > ClO_3^-$

Answer: 4

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23. How many P-O-P bonds appear in cydotrimetaphosphoric acid?

A. zero

B. two

C. three

D. four

Answer: 3

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24. In which of the following molecule / ion all the bonds are equal?

A. SiF_4

B. IF_7

C. ClF_3

D. PCl_5

Answer: 1

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25. Which of the following options with respect to increasing bond order is correct ?

A. $NO < C_2 < O_2^- < B_2$

B. $C_2 < NO < B_2 < O_2^-$

C. $B_2 < O_2^- < NO < C_2$

D. $B_2 < O_2^- < C_2 < NO$

Answer: D

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26. The boiling point of CCl_4 higher than that of $CHCl_3$ because :

A. the dipole moment of CCl_4 is greater than that of $CHCl_3$

B. $CHCl_3$ forms hydrogen bonds.

C. CCl_4 has more number of polarisable electrons resulting in the strong vander Waal's force of attraction than that of $CHCl_3$.

D. CCl_4 is more ionic than $CHCl_3$.

Answer: 3

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27. Which of the following statements are correct ?

(I) In ICl_2, ClF_3 and $TeCl_4$, the number of lone pair(s) of electrons on central atoms are $3, 2$ and 1 respectively.

(II) Amongst $CO, CO_2, CO_3^{2-}, CH_3OH$ the correct order from the weakest to the strongest carbon $-$ oxygen bond $\equiv CH_3OH < CO_3^{2-} < CO_2 < CO.$

(III) The hybridisation of boron in BF_3 is the same which nitrogen has in $ClNO$ molecule.

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28. Which of the following species shows intramolecular hydrogen bonding ?

A. H_(2)O

B. HF

C. 

D. $CCl_3CH(OH)_2$

Answer: D

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29. Anhydrous $AlCl_3$ is covalent from the data given below, perdict whether it would remain covalent or between ionic in aqueous solution

IE_1 of $Al = 5140kJmol^{-1}$

$\Delta_{\text{hyd}}H^{\ominus}\left(Al^{3+}\right) = -4665kJmol^{-1}$

$\Delta_{\text{hyd}}H^{\ominus}\left(Cl^{\ominus}\right) = -380kJmol^{-1}$

A. It will remain covalent in aqueous solution

B. The solution will consist of $Al^{3+}\&Cl^{-}$

C. The solution will consist of hydrated $Al^{3+}\&Cl^{-}$

D. None of these

Answer: 3

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30. In terms of the molecular orbital theory , which of the following species will most likely be the one to gain an electron to form thermodynamically more stable species?

A. CN

B. NO

C. O_2^{2+}

D. N_2

Answer: 1

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31. Which of the following statements are correct?

(I) N_2H_4 is pyramidal about each N atom.

(II) NH_2OH is pyramidal about the N atom and bent about the O atom.

(III) CH_3COCl is trigonal planar about the carbon atom (attached to O and Cl).

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32. Which of the following statement is / are true ?

A. Based on VSEPR theory, the number of 90 degree $F-Br$ angles in BrF_5 is four.

B. Molecular geometries of both $(CH_3)_3N$ and $(SiH_3)_3N$ are trigonal planar.

C. The $C-C$ bond length in C_2 is larger than $O-O$ bond length O_2.

D. For ozone molecule, one oxygen $-$ oxygen bond is stronger than the other oxygen $-$ oxygen bond.

Answer: 3

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33. The maximum number of atoms which lie in the same plane in B_2H_6 molecule is :

A. 5

B. 6

C. 4

D. 8

Answer: 2

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34. Arrange the following compounds in increasing order of their ionic character :

$SnC_2, SnCl_4, SiCl_4, SnF_4, SnF_2$

A. $SnF_2 < SnCl_2 < SnF_4 < SnCl_4, SiCl_4$

B. $SnF_2 < SnCl_2 < SnF_4 < SiCl_4 < SnCl_4$

C. $SiCl_4 < SnCl_4 < SnF_4 < SnCl_2 < SnF_2$

D. $SnCl_4 < SnF_4 < SnCl_2 < SnF_2 < SiCl_4$

Answer: 3

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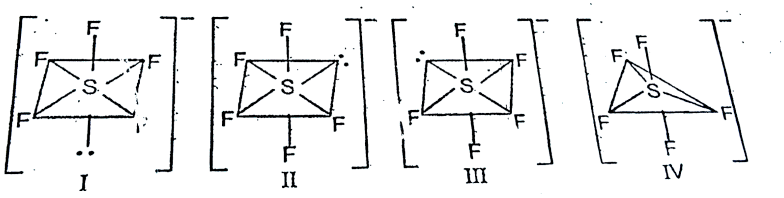
35. The shape of SF_5 can be :



A. I only

B. I and II only

C. IV only

D. $I, II, \& III$

Answer: 4

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36. In terms of polar character, which one of the following order is correct?

A. $NH_3 < H_2O < HF < H_2S$

B. $H_2S < NH_3 < H_2O < HF$

C. $H_2O < NH_3 < H_2S < HF$

D. $HF < H_2O < NH_3 < H_2S$

Answer: B

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37. O_2F_2 is an unstable yellow change solid and H_2O_2 is a colourless liquid, both have $O-O$ bond and $O-O$ bond length in H_2O_2 and O_2F_2 respectively is :

A. $1.22Å, 1.48Å$

B. $1.48Å, 1.22Å$

C. $1.22Å, 1.22Å$

D. $1.48Å, 11.48Å$

Answer: B

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38. The state of hybridisation of central atom in dimer of BH_3 and BeH_2 IS :

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39. Solubility of alkali metal floucides increase down the group.

Select correct explanation for given statement "

A. Hydration energy increases and lattice energy decreases down the group

B. Both energy decrease down the group but decrease in hydration energy is rapid

C. Both energy decrease down the group but decrese in lattice energy is rapid

D. Both energy increase down the group but increase in hydration energy is rapid.

Answer: 3

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40. The ratio of $\sigma -$ bond and $\pi -$ bond in tetracryano ethylene is :

A. $2:1$

B. $1:1$

C. $1:2$`

D. None of these

Answer: 2

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41. The correct order of strength of $H -$ bond in the following compound :

A. $H_2O > H_2O_2 > HF > H_2S$

B. $HF > H_2O_2 > H_2O > H_2S$

C. $HF > H_2O > H_2S > H_2O_2$

D. $HF > H_2O > H_2O_2 > H_2S$

Answer: 4

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42. In Which of the following metal to metal bond is present?

A. Cupric chloride

B. Stannous chloride

C. Mercurous chloride

D. Mercuric chloride

Answer: C

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43. What is not true about ice?

A. It has open cage like structure

B. It has less density than water

C. Each O atom is surrounded by $4H$ atoms

D. Each O atom has four $H-$ bonds around it

Answer: 4

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44. Give the correct order of initials T or F for following statements. Use T is statement is true and F if it is false :

(I) The order of repulsion between different pair of electrons is

$l_p - l_p > l_p - b_p > b_p - b_p$

(II) In general, as the number of lone pair of electrons on central atom increases, value of bond angle from normal bond angle also increases

(III) The number of lone pair on O in H_2O is 2 while on N in NH_3 is 1

(IV) The structures of xenon fluorides and xenon oxyfluorides could not be explained on the basis of VSEPR theory

A. TTTF

B. TFTF

C. TFTT

D. TFFF

Answer: 2

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45. Consider the following statements :

$I.$ A sigma(σ) bond is formed when two$\sigma -$ orbitals overlap

$II.$ A pi(π) bond is formed when two$\pi -$ orbitals axially

$III.$ A $\sigma -$ bond is weaker than $\pi -$ bond

Which of the above statements is / are correct ?

A. I and II

B. II and III

C. I atone

D. II alone

Answer: C

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46. Match list I with List II and select the correct answer using the codes given below the lists

$List I$	$List II$
$(a) CS_2$	(p) Bent
$(b) SO_2$	(q) Linear
$(c) BF_3$	(r) Trigonal planar
$(d) NH_3$	(t) Trigonal pyramidal

Codes :

A.

(a)	(b)	(c)	(d)
q	p	r	t

B.

(a)	(b)	(c)	(d)
p	q	r	t

C.

(a)	(b)	(c)	(d)
q	p	t	s

D.

(a)	(b)	(c)	(d)
p	q	t	s

Answer: 1

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47. Match List $-I$(Hybridisation) with List $-II$(shapes) and select the correct answer using the codes given below the lists :

List -1	List $-II$
$(a) dsp^2$	(p) Square planar
$(b) sp^3$	(q) Tetrahedral
$(c) d^2sp^3$	(q) Octahedral
$(d) sp^3d$	(s) Trigonal bipyramidal

Codes :

A.

(a)	(b)	(c)	(d)
p	q	r	s

B.

(a)	(b)	(c)	(d)
s	q	r	p

C.

(a)	(b)	(c)	(d)
q	r	q	s

D.

(a)	(b)	(c)	(d)
s	r	q	p

Answer: 1

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48. Identify the correct order of increasing number of π-bonds in structures of the following molecules.

$(I)H_2S_2O_6(II)H_2SO_3(III)H_2S_2O_5$

A. I,II and III

B. II,I and III

C. II,III and I

D. I,III and II

Answer: 3

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49. The hybridization of the centre atom will change when :

A. NH_3 combines with H^+

B. H_3BO_3 combines with OH^-

C. NH_3 forms NH_2^-

D. H_2O combines with H^+

Answer: B

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Organic Chemistry Fundamental Concept

1. The correct order of dipole moment is .

A. CH_3ONa

B. $PhLi$

C. PH_3

D. $\overset{\ominus}{N}H_4$

Answer: 4

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2. Which of the following is not correct ?

A. All are correct

B. Only S_1, $S_2 \& S_3$ are correct.

C. Only S_1 and S_2 are correct

D. Only S_1 and S_3 are correct.

Answer: 2

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3. Correct order of bond length is:

A. Dehalogenation

B. Dehydrohalogenation

C. Decarboxylation

D. Dehydration

Answer: 2

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4. Which of the following is paramagnetic ?

A. $I^- < Cl^- < Br^-$

B. $Br^- < Cl^- < I^-$

C. $I^- < Br^- < Cl^-$

D. $Cl^- < Br^- < I^-$

Answer: 4

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5. Gaseous SO_3 molecule

A. is planner triangular in shape with three σ- bonds from sp2-p overlap and three π- bonds formed by two pπ-pπ overlap and one pπ-dπ overlap.

B. is planner triangular in shape with three σ- bonds from sp2-p overlap and three π- bonds formed by one pπ-pπ overlap and two pπ-dπ overlap.

C. is a pyramidal molecule with one double bond and two single bonds

D. planner triangular in shape with two double with two double bonds between S and O and one single bond

Answer: 1

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6. Among the following, the pair in which the two species are not iso-structural is

A. IO_3^- and XeO_3

B. AlH_4^- and PH_4^+

C. AsF_6^- and SF_6

D. SiF_4 and SeF_4

Answer: 4

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