Q1 JEE Main 2020 - 2 September (Morning)

If AB_4 molecule is a polar molecule, a possible geometry of AB_4 is

(A) Tetrahedral

(B) Rectangular planar

(C) Square pyramidal

(D) Square planar

Q2 JEE Main 2020 - 2 September (Evening)

Match the type of interaction in column A with the distance dependence of their interaction energy in column

A	B
(i) ion-ion	(a) $\frac{1}{r}$
(ii) dipole-dipole	(b) $\frac{1}{r^2}$
(iii) London dispersion	(c) $\frac{1}{r^3}$
	(d) $\frac{1}{r^6}$

(A) $(I)-(a),(II)-(b),(III)-(d)$

(B) $(I)-(b),(II)-(d),(III)-(c)$

(C) $(1)-(a),(\|)-(b),(\|1)-(c)$
(D) $(1)-(a),(II)-(c),(\|1)-(d)$

Q3 JEE Main 2020 - 2 September (Evening)

The molecular geometry of SF_6 is octahedral. What is the geometry of SF_4 (including lone pair(s) of electrons, if any)?

(A) Tetrahedral
(B) Trigonal bipyramidal
(C) Square planar
(D) Pyramidal

Q4 JEE Main 2020 - 2 September (Evening)

The shape / structure of $\left[\mathrm{XeF}_5\right]^-$ and $\mathrm{XeO}_3\mathrm{F}_2$, respectively, are

(A) Pentagonal planar and trigonal bipyramidal
(B) Trigonal bipyramidal and pentagonal planar
(C) Octahedral and square pyramidal
(D) Trigonal bipyramidal and trigonal bipyramidal

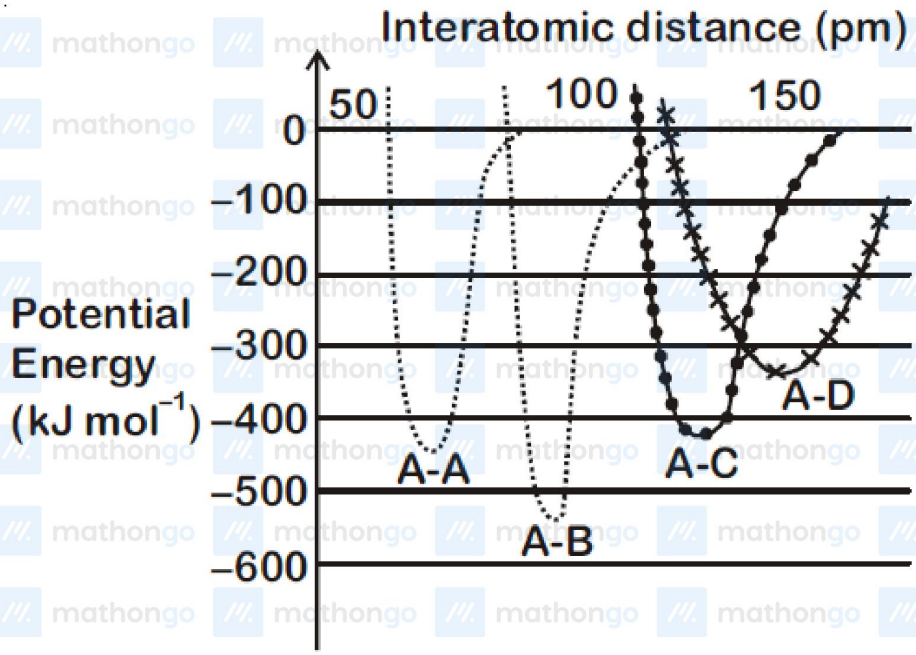
Q5 JEE Main 2020 - 3 September (Morning)

Of the species, NO, NO $^+$, NO^{2+} and NO-, the one with minimum bond strength is

(A) NO-
(B) NO^{2+}
(C) NO^+
(D) NO

Q6 JEE Main 2020 - 4 September (Morning)

The intermolecular potential energy for the molecules A, B, C and D given below suggests that :

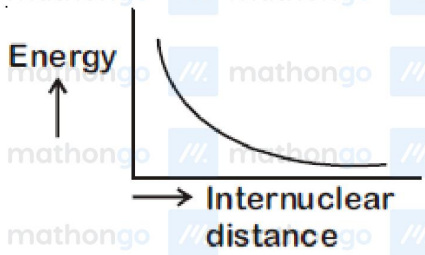


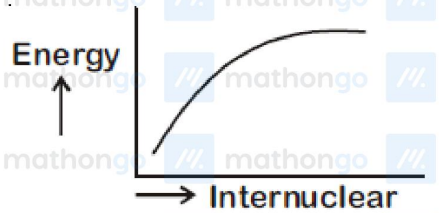
(A) $A - B$ has the stiffest bond
(B) A-D has the shortest bond length
(C) A-A has the largest bond enthalpy
(D) D is more electronegative than other atoms

Q7 JEE Main 2020 - 5 September (Morning)

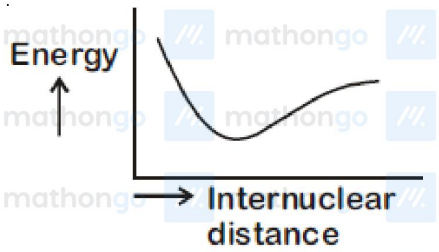
The potential energy curve for the H_2, molecule as a function of internuclear distance is

(A)

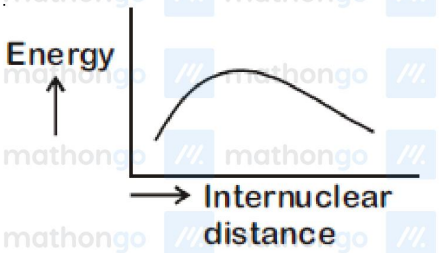




(B)



(C)



(D)

Q8 JEE Main 2020 - 5 September (Evening)

The compound that has the largest $\mathrm{H-M-H}$ bond angle $(\mathrm{M=N, O, S, C})$ is

(A) $\mathrm{H_2S}$
(B) $\mathrm{CH_4}$
(C) $\mathrm{NH_3}$
(D) $\mathrm{H_2O}$

Q9 JEE Main 2020 - 7 January (Morning)

Which theory can explain bonding of $Ni(CO)_4$:

(A) MOT
(B) CFT
(C) VBT

(D) Werner's theory

Q10 JEE Main 2020 - 7 January (Morning)

Oxidation number of potassium in $K_2O,\ K_2O_2\ \&\ KO_2$ respectively is

(A) $+1,\ +1,\ +1$
(B) $+1,\ +2,\ +4$
(C) $+1,\ +2,\ +2$
(D) $+1,\ +4,\ +2$

Q11 JEE Main 2020 - 7 January (Morning)

The relative strength of interionic/intermolecular forces in decreasing order is:

(A) Dipole - Dipole > Ion - Ion > Dipole - Ion
(B) Ion - Ion > Dipole - Dipole > Dipole - Ion
(C) Dipole - Ion > Dipole - Dipole > Ion - Ion
(D) Ion - Ion > Dipole - Ion > Dipole - Dipole

Q12 JEE Main 2020 - 7 January (Evening)

Bond order and magnetic nature of CN^- are respectively

(A) 3, diamagnetic
(B) 3, paramagnetic
(C) 2.5, paramagnetic
(D) 2.5, diamagnetic

Q13 JEE Main 2020 - 7 January (Evening)

Number of sp^2 hybrid carbon atoms in aspartame is

Q14 JEE Main 2020 - 9 January (Morning)

If the magnetic moment of a dioxygen species is 1.73 B.M., it may be :

(A) O_2^-, or O_2^+
(B) O_2, or O_2^+
(C) O_2, or O_2^-

(D) None of these

Q15 JEE Main 2020 - 9 January (Evening)

The number of sp^2 hybrid orbitals in a molecule of benzene is:

(A) 24
(B) 18
(C) 12
(D) 6

Q16 JEE Main 2020 - 9 January (Evening)

The isomer(s) of $\left[Co(NH_3)_4Cl_2\right]$ that has/have a $Cl-Co-Cl$ angle of 90°, is/are:

(A) cis and trans
(B) cis only
(C) meridional and trans
(D) trans only

Q17 JEE Main 2020 - 8 January (Morning)

The predominant intermolecular forces present in ethyl acetate, a liquid, are :

(A) H-bond, London dispersion.
(B) dipole-dipole interation, H-bond
(C) dipole -dipole interation, London dispersion
(D) H-bond, dipole-dipole interation, London dispersion

Answer Key

Q1 (C) **Q2** (D) **Q3** (B) **Q4** (A)

Q5 (A) **Q6** (A) **Q7** (C) **Q8** (B)

Q9 (A) **Q10** (A) **Q11** (D) **Q12** (A)

Q13 (9) **Q14** (A) **Q15** (B) **Q16** (B)

Q17 (C)