Chemical Bonding and Molecular Structure

Q.No.1:
Which one of the following molecules is expected to exhibit diamagnetic behaviour?

JEE 2013

A. C_2
B. N_2
C. O_2
D. S_2

Q.No.2:
Which of the following is the wrong statement ?

JEE 2013

A. ONCl and ONO^- are not isoelectronic.
B. O_3 molecule is bent.
C. Ozone is violet-black in solid state.
D. Ozone is diamagnetic gas.

Q.No.3:
In which of the following pairs of molecules/ions, both the species are not likely to exist?

JEE 2013

A. H_2^+, He_2^{2-}
B. H_2^-, He_2^{2-}
C. H_2^{2+}, He_2
D. H_2^-, He_2^{2+}

Q.No.4:

Which of the following exists as covalent crystals in the solid state?

JEE 2013

A. Iodine
B. Silicon
C. Sulphur
D. Phosphorus

Q.No.5:
Stability of the species Li_2, Li_2^- and Li_2^+ increases in the order of :

JEE 2013

A. $Li_2 < Li_2^+ < Li_2^-$
B. $Li_2^- < Li_2^+ < Li_2$
C. $Li_2 < Li_2^- < Li_2^+$
D. $Li_2^- < Li_2 < Li_2^+$

Q.No.6: The correct order of increasing ionic radii (in Å) of N^{3-}, O^{2-} and F^- is

JEE 2015

A. 1.36, 1.40 and 1.71 respectively.
B. 1.36, 1.71 and 1.40 respectively.
C. 1.71, 1.40 and 1.36 respectively.
D. 1.71, 1.36 and 1.40 respectively.

Q.No.7: Which of the following species is not paramagnetic? **JEE 2017**

A. CO
B. O_2
C. B_2
D. NO

Q.No.8: The group having isoelectronic species is: **JEE 2017**

A. O^-, F^-, Na, Mg^+
B. O^{2-}, F^-, Na, Mg^{2+}
C. O^-, F^-, Na^+, Mg^{2+}
D. O^{2-}, F^-, Na^+, Mg^{2+}

Q.No.9: Total number of Ione pair of electrons in I_3^- ion is : **JEE 2018**

A. 9

B. 12

C. 3

D. 6

Q.No.10: According to molecular orbital theory, which of the following will not be a viable molecule ? **JEE 2018**

A. H_2^-

B. H_2^{2-}

C. He_2^{2+}

D. He_2^+