Date Planned : __ / __ / __	Daily Tutorial Sheet - 5	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	JEE Advanced (Archive)	Exact Duration :_____

61. In compounds of type ECl_3 where E = B, P, As or Bi, the angle Cl – El – Cl is in order **(1999)**

(A) B > P = As = Bi **(B)** B > P > As > Bi

(C) B < P = As = Bi **(D)** B < P < As < Bi

62. The correct order of increasing C – O bond length of CO, CO_3^{2-}, CO_2 is: **(1999)**

(A) $CO_3^{2-} < CO_2 < CO$ **(B)** $CO_2 < CO_3^{2-} < CO$

(C) $CO < CO_3^{2-} < CO_2$ **(D)** $CO < CO_2 < CO_3^{2-}$

63. In the compound $\overset{1}{C}H_2 = \overset{2}{C}H - \overset{3}{C}H_2 - \overset{4}{C}H_2 - \overset{5}{C} \equiv \overset{6}{C}H$, the $C_2 - C_3$ bond is of: **(1999)**

(A) $sp - sp^2$ **(B)** $sp^3 - sp^3$

(C) $sp - sp^3$ **(D)** $sp^2 - sp^3$

64. The geometry of H_2S and its dipole moment are: **(1999)**

(A) angular and non-zero **(B)** angular and zero

(C) linear and non-zero **(D)** linear and zero

65. Write the MO electron distribution of O_2. Specify its bond order and magnetic property. **(2000)**

66. Draw the molecular structures of XeF_2, XeF_4 and XeO_2F_2, indicating the location of lone pair(s) of electrons. **(2000)**

67. The common features among the species CN^-, CO and NO^+ are: **(2001)**

(A) bond order three and isoelectronic **(B)** bond order three and weak field ligands

(C) bond order two and acceptors **(D)** isoelectronic and weak field ligands

68. Molecular shape of XeF_2, BeF_2 and CF_2 are : **(2001)**

(A) the same, with 3, 0 and 0 lone pair of electrons respectively

(B) the same, with 3, 1 and 0 lone pair of electrons respectively

(C) different, with 0, 1 and 2 lone pair of electrons respectively

(D) different, with 3, 0 and 1 lone pair of electrons respectively

***69.** The nodal plane in the π – bond of $CH_2 = C = C = CH_2$ is located in: **(2002)**

(A) the molecular plane

(B) a plane parallel to the molecular plane

(C) a plane perpendicular to the molecular plane.

(D) a plane perpendicular to the molecular plane which contains the carbon-carbon –σ bond

70. The hybridization of atomic orbitals of nitrogen in N_3^-, $(H_3Si)_3N$ and $(H_3C)_3N$ are : **(2002)**

(A) sp, sp^3 and sp^2 respectively **(B)** sp, sp^2 and sp^3 respectively

(C) sp^2, sp and sp^3 respectively **(D)** sp^2, sp^3 and sp respectively

71. Specify the coordination geometry around and hybridization of N and B atoms in a 1 : 1 complex of BF_3 and $N(CH_3)_3$: **(2002)**

(A) N : tetrahedral, sp^3; B : tetrahedral, sp^3

(B) N : pyramidal, sp^3; B : pyramidal, sp^3

(C) N : pyramidal, sp^3; B : planar, sp^2

(D) N : pyramidal, sp^3; B : tetrahedral, sp^3

72. Identify the least stable ion amongst the following : **(2002)**

(A) Li^- **(B)** Be^- **(C)** B^- **(D)** C^-

73. Which of the following molecular species, has unpaired electron(s) ? **(2002)**

(A) N_2 **(B)** F_2 **(C)** O_2^- **(D)** O_2^{2-}

74. Among the following, the molecule with the highest dipole moment is: **(2003)**

(A) CH_3Cl **(B)** CH_2Cl_2 **(C)** $CHCl_3$ **(D)** CCl_4

75. Which of the following are isoelectronic and isostructural? **(2003)**

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

(A) NO_3^-, CO_3^{2-} **(B)** SO_3, NO_3^- **(C)** ClO_3^-, CO_3^{2-} **(D)** CO_3^{2-}, SO_3