Date Planned : __ / __ / __	Daily Tutorial Sheet - 4	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	JEE Main (Archive)	Exact Duration :_____

46. The group having triangular planar structures is : **(2017)**

(A) BF_3, NF_3, CO_3^{2-} **(B)** CO_3^{2-}, NO_3^-, SO_3

(C) NH_3, SO_3, CO_3^{2-} **(D)** NCl_3, BCl_3, SO_3

47. Total number of lone pair of electrons in I_3^- ion is : **(2018)**

(A) 9 **(B)** 12 **(C)** 3 **(D)** 6

48. Which of the following compounds contain(s) no covalent bond(s) ? **(2018)**

$KCl, PH_3, O_2, B_2H_6, H_2SO_4$

(A) KCl **(B)** KCl, B_2H_6

(C) KCl, B_2H_6, PH_3 **(D)** KCl, H_2SO_4

49. According to molecular orbital theory, which of the following will not be a viable molecule ? **(2018)**

(A) H_2^- **(B)** H_2^{2-} **(C)** He_2^{2+} **(D)** He_2^+

50. During the change of O_2 to O_2^-, the incoming electron goes to the orbital; **(2019)**

(A) $\pi 2p_y$ **(B)** $\sigma^* 2p_z$ **(C)** $\pi^* 2p_x$ **(D)** $\pi 2p_x$

51. The oxoacid of Sulphur that does not contain bond between Sulphur atoms is: **(2019)**

(A) $H_2S_2O_4$ **(B)** $H_2S_2O_7$ **(C)** $H_2S_2O_3$ **(D)** $H_2S_4O_6$

52. Among the following, the molecule expected to be stabilized by anion formation is : C_2, O_2, NO, F_2

(A) C_2 **(B)** NO **(C)** O_2 **(D)** F_2 **(2019)**

53. The basic structural unit of feldspar, zeolites, mica, and asbestos is:

(A) $-\left(\begin{matrix}R\\|\\Si-O\\|\\R\end{matrix}\right)_n$ (R = Me) **(B)** $\left(SiO_3\right)^{2-}$

(C) $\left(SiO_4\right)^{4-}$ **(D)** SiO_2

54. The correct statement among the following is: **(2019)**

(A) $\left(SiH_3\right)_3N$ is planar and less basic than $\left(CH_3\right)_3N$

(B) $\left(SiH_3\right)_3N$ is planar and more basic than $\left(CH_3\right)_3N$

(C) $\left(SiH_3\right)_3N$ is pyramidal and less basic than $\left(CH_3\right)_3N$

(D) $\left(SiH_3\right)_3N$ is pyramidal and more basic than $\left(CH_3\right)_3N$

55. Among the following species, the diamagnetic molecule is: **(2019)**

(A) CO **(B)** O_2 **(C)** NO **(D)** B_2

56. The ion that has sp^3d^2 hybridization for the central atom, is: **(2019)**

(A) $\left[ICl_4\right]^-$ **(B)** $\left[ICl_2\right]^-$ **(C)** $\left[BrF_2\right]^-$ **(D)** $\left[IF_6\right]^-$

57. Among the following molecules/ions, $C_2^{2-}, N_2^{2-}, O_2^{2-}, O_2$ **(2019)**

Which one is diamagnetic and has the shortest bond length?

(A) C_2^{2-} **(B)** O_2^{2-} **(C)** O_2 **(D)** N_2^{2-}

58. The correct statement about ICl_5 and ICl_4^- is: **(2019)**

(A) ICl_5 is trigonal bipyramidal and ICl_4^- is tetrahedral

(B) ICl_5 is square pyramidal and ICl_4^- is square planar.

(C) both are isostructural

(D) ICl_5 is square pyramidal and ICl_4^- is tetrahedral.

59. According to molecular orbital theory, which of the following is true with respect to Li_2^+ and Li_2^- ?

(A) Both are stable **(B)** Li_2^+ is stable and Li_2^- is unstable **(2019)**

(C) Li_2^+ is unstable and Li_2^- is stable **(D)** Both are unstable

60. In which of the following processes, the bond order has increased and paramagnetic character has changed to diamagnetic? **(2019)**

(A) $NO \rightarrow NO^+$ **(B)** $N_2 \rightarrow N_2^+$ **(C)** $O_2 \rightarrow O_2^{2-}$ **(D)** $O_2 \rightarrow O_2^+$

61. Two pi and half sigma bonds are present in: **(2019)**

(A) N_2 **(B)** N_2^+ **(C)** O_2 **(D)** O_2^+

62. The type of hybridisation and number of lone pair(s) of electrons of Xe in $XeOF_4$, respectively, are :

(A) sp^3d^2 and 2 **(B)** sp^3d and 1 **(C)** sp^3d^2 and 1 **(D)** sp^3d and 2 **(2019)**