VMC Vidyamandir Classes SINCE 1986
IIT JEE | MEDICAL | FOUNDATION

Student Name: ——————————————————————

Batch: ———— **Roll No.:** ——————————**Date:** ——————————

CHEMISTRY | ASSIGNMENT –2| CLASS 11TH| CHEMICAL BONDING

1. Ionic bond is not a true bond, because
(A) it is nondirectional (B) it is not strong
(C) it is directional (D) it has repulsion between ions

2. NH_3 and BF_3 combine readily because of the formation of :
(A) a covalent bond (B) a hydrogen bond (C) a coordination bond (D) an ionic bond

3. Iron is harder than sodium because
(A) iron atoms are smaller (B) iron atoms are more closely packed
(C) metallic bonds are stronger is sodium (D) metallic bonds are stronger in iron

4. The types of bonds present in $CuSO_4.5H_2O$ are
(A) electrovalent and covalent (B) electrovalent and coordinate covalent
(C) covalent and coordinate covalent
(D) electrovalent, covalent and coordinate covalent & H - bond

5. Which of the following has minimum energy?
(A) σ bond (B) π bond (C) ionic bond (D) hydrogen bond

6. A: tetracyanomethane B: Carbondioxide C: Benzene D: 1,3-buta-di-ene
Ratio of sigma and pi bonds is in order :
(A) A=B<C<D (B) A=B<D<C (C) A=B=C=D (D) C<D<A<B

7. How many bonded electron pairs are present in IF_7 molecule :
(A) 6 (B) 7 (C) 5 (D) 8

8. The ratio of σ and π bonds in benzene is :
(A) 2 (B) 6 (C) 4 (D) 8

9. PCl_5 exists but NCl_5 does not because :
(A) Nitrogen has no vacant 2d-orbital (B) NCl_5 is unstable
(C) Nitrogen atom is much smaller than p (D) Nitrogen is highly inert

10. The p-p orbital overlapping is present in the following molecule
(A) Hydrogen (B) Hydrogen bromide (C) Hydrogen chloride (D) Chlorine

11. Number of bonds in SO_2
(A) Two σ and two π (B) Two σ, One π
(C) Two σ, two π and one lone pair (D) Three σ bonds

12. Triple bond in ethyne is formed form
(A) Three sigma bonds (B) Three pi bonds
(C) One sigma and two pi bonds (D) Two sigma and one pi bond

13. The bond in the formation of fluorine molecule will be
(A) Due to s-s overlapping (B) Due to s-p overlapping
(C) Due to p-p overlapping (D) Due to hybridization

14. The number of shared pairs of electrons in propane is
(A) 2 (B) 4 (C) 6 (D) 10

15. Mg_2C_3 reacts with water forming propyne , C_3^{4-} has :
(A) two sigma and two pi bonds (B) three sigma and one pi bonds
(C) two sigma and one pi bonds (D) two sigma and three pi bonds

16. How many σ- and π- bonds are there in salicyclic acid?
(A) 10σ, 4π (B) 16σ,4π (C) 18σ, 2π (D) 16σ,2π

17. When 2s-2s, 2p-2p and 2p-2s orbitals overlap, the bond strength decreases in order
(A) p-p > s-s > p-s (B) p-p > p-s > s-s (C) s-s > p-p > p-s (D) s-s > p-s > p-p

18. Fluorine molecule is formed by the overlapping of-
(A) s-p orbitals (B) s-s orbitals
(C) p-p orbitals by end to end manner (D) p-p orbitals by sides to sides manner

19. In the XeF_4 molecule, the Xe atom is in the
(A) sp^2-hybridized state (B) sp^3-hybridised state
(C) sp^2d-hybridized state (D) sp^3d^2 Hybridisation

20. If a molecule MX_3 has zero dipole moment, the sigma bonding orbital used by M (atm.no. < 21) are:
(A) pure p (B) sp hybrid (C) sp^2 hybrid (D) sp^3 hybrid

21. In the context of carbon, which of the following is arranged in the correct order of electronegativity?
(A) $sp > sp^2 > sp^3$ (B) $sp^3 > sp^2 > sp$ (C) $sp^2 > sp > sp^3$ (D) $sp^3 > sp > sp^2$

22. In the series ethane, ethylene and acetylene, the C-H bond energy is :
(A) The same in all the three compounds (B) Greatest in ethane
(C) Greatest in ethylene (D) Greatest in acetylene

23. The cenral atom in a molecule is in sp^2 hybrid state. The shape of molecule will be
(A) Pyramidal (B) Tetrahedral (C) Octahedral (D) Trigoanl planar

24. A sp^3 hybridized orbital contains
(A) 1/4 s- character (B) 1/2 s- character (C) 2/3 s- character (D) 3/4 s- character

25. The bond angle in ethylene is
(A) 180^o (B) 120^o (C) 109^o (D) 90^o

26. The mode of hybridization of carbon in CO_2 is
(A) sp (B) sp^2 (C) sp^3 (D) None of these

27. CCl_4 has the hybridization
(A) sp^3d (B) dsp^2 (C) sp (D) sp^3

28. Which of the following hybridization results in non-planar orbitals
(A) sp^3 (B) dsp^2 (C) sp^2 (D) sp

29. Percentage of s-character in sp^3 hybrid orbital is
(A) 25 (B) 50 (C) 66 (D) 75

30. For which of the following hybridization the bond angle is maximum
(A) sp^2 (B) sp (C) sp^3 (D) dsp^2

31. s-character in sp hybridized orbitals are
(A) 1/3 (B) 1/2 (C) 1/4 (D) 2/3

32. The correct order towards bond angle is
(A) $sp < sp^2 < sp^3$ (B) $sp^2 < sp < sp^3$ (C) $sp^3 < sp^2 < sp$
(D) Bond angle does not depend on hybridization

33. The correct order of increasing X-O-X bond angle is (X = H,F or Cl) :
(A) $H_2O > Cl_2O > F_2O$ (B) $Cl_2O > H_2O > F_2O$ (C) $F_2O > Cl_2O > H_2O$ (D) $F_2O > H_2O > Cl_2O$

34. Hybridization of carbon in C_3O_2 is :
(A) sp (B) sp^2 (C) sp^3 (D) sp^3d

35. Carbon atoms in $C_2(CN)_4$ are :
(A) sp hybridized (B) sp^2 hybridized
(C) sp and sp^2 hybridized (D) sp,sp^2 and sp^3 hybridized

36. The bond angle in PH_3 is :
(A) Much lesser than NH_3 (B) Equal to that in NH_3
(C) Much greater than in NH_3 (D) Slightly more than in NH_3

37. The hybridization of atomic orbitals of nitrogen in,RN_3 and are
(A) sp^2, sp^3 and sp^2 respectively (B) sp^2 ,sp and sp^2 respectively
(C) sp^2, sp, sp^3 respectively (D) sp^2 , sp^3 and sp respectively

38. Specify the coordination geometry around and hybridization of N and B atoms in a 1:1 complex of BF_3 and NH_3
(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

39. If s character decreases in hybrid orbital, then bond angle
(A) decreases (B) increases (C) remains uncertain (D) all are wrong

40. XeF_2 involves hybridization
(A) sp^3 (B) sp^3d (C) sp^3d^2 (d) None of these

41. sp^3 hybridisation is found in
(A) CO_3^{2-} (B) BF_3 (C) NO^-_3 (D) NH_3

42. $BeCl_2$ has which of the following types of orbital overlap?
(A) sp^2-p (B) sp-p (C) sp^3-p (D) s-p

43. Octahedral molecular shape exists in….. hybridization
(A) sp^3d (B) sp^3d^2 (C) sp^3d^3 (D) None of these

44. The structure and hybridization of $Si(CH_3)_4$ is
(A) Bent , sp (B) Trigonal , sp^2 (C) Octahedral, sp^3d (D) Tetrahedral, sp^3

45. Which compound has bond angle of nearly to 90^O
(A) H_2O (B) H_2S (C) NH_3 (D) BF_3

46. True order of bond angle is
(A) $H_2O > H_2S > H_2Se > H_2Te$ (B) $H_2Te > H_2Se > H_2Se > H_2O$
(C) $H_2S > H_2O > H_2Se > H_2Te$ (D) $H_2O > H_2S > H_2Te > H_2Se$

47. During the complete combustion of methane CH_4, what change in hybridization does the carbon atom undergo?
(A) sp^3 to sp (B) sp^3 to sp^2 (C) sp^2 to sp (D) sp^2 to sp^3

48. The structure of XeF_2 involves hybridization of the type:
(A) sp^3 (B) dsp^2 (C) sp^3d (D) sp^3d^2

49. The shapes of PCl_4^+, PCl_6^- and $AsCl_5$ and are respectively:
(A) Square planar, tetrahedral and see-saw (B) tetrahedral, octahedral and trigonal bipyramidal
(C) tetrahedral, square planar and pentagonal bipyramidal

(D) trigonal bipyramidal, tetrahedral and square pyramidal

50. The shape of IF_5 and IF_7 are respectively :

(A) Tetragonal pyramidal and pentagonal bi-pyramidal

(B) Octahedral and pyramidal (C) trigonal bipyramidal and square antiprismatic

(D) Distorted square planar and distorted octahedral

51. Molecular shapes of SF_4, CF_4 and XeF_4 are:

(A) the same, with 2,0 and 1 lone pair of electrons respectively on central atom

(B) the same, with 1,1 and 1 lone pair of electrons respectively on central atom

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

(D) different with 1,0 and 2 lone pair of electrons respectively on central atom

52. The shape of a molecule which has 3 bond pairs and one lone pair is :

(A) Octahedral (B) Pyramidal (C) Triangular planar (D) Tetrahedral

53. Which molecule is linear

(A) NO_2 (B) ClO_2 (C) CO_2 (D) H_2S

54. Which of the following molecules has trigonal planar geometry

(A) IF_3 (B) PCl_3 (C) NH_3 (D) BF_3

55. Compound formed by sp^3d hybridization will have structure

(A) Planar (B) Pyramidal (C) Angular (D) Trigonal bipyramidal

56. XeF_6 is

(A) Octahedral (B) Distorted octahedral (C)Planar (D) Tetrahedral

57. H_2O is

(A) A liner triatomic molecule (B) A bent(angular) triatomic molecule

(C) Both of these (D) None of these

58. In ICl_4^- , the shape is square planar. The number of bond pair – lone pair repulsion at 90^o are :

(A) 6 (B) 8 (C) 12 (D) 4

59. Among the following species, identify the isostructural pairs : NF_3 , NO_3^- , BF_3 , H_3O^+ , HN_3

(A) [NF_3, NO_3^-] and [BF_3 , H_3O^+] (B) [NF_3, HN_3] and [NO_3^- , BF_3]

(C) [NF_3, H_3O^+] and [NO_3^- , BF_3] (D) [NF_3, H_3O^+] and [HN_3 , BF_3]

60. The structure of H_2O_2 is

(A) Planar (B) Non-Planar (C) Spherical (D) Linear

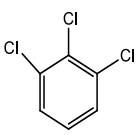
61. The smallest bond angle is found in

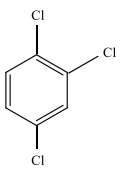
(A) IF_7 (B) CH_4 (C) BeF_2 (D) BF_3

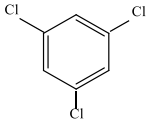
62. Which of the following pairs is (are) isostructural?

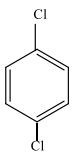
(A) SF_4 and SiF_4 (B) SF_6 and SiF_6^{2-} (C) SiF_6^{2-} and SeF_6^{2-} (D) XeO_6^{4-} and TeF_6^{2-}

63. Which has maximum dipole moment?

(A) 

(B) 

(C) 

(D) 

64. Which of the following has the least dipole moment

(A) CH_4 (B) CO (C) SO_2 (D) NH_3

65. Which molecule has the largest dipole moment

(A) HCl (B) HI (C) HBr (D) HF

66. Which bond angle θ would result in the maximum dipole moment for the triatomic molecule YXY

(A) $\theta = 90^o$ (B) $\theta = 120^o$ (C) $\theta = 150^o$ (D) $\theta = 180^o$

67. Which of the following would have a permanent dipole moment

(A) BF_3 (B) SiF_4 (C) SF_4 (D) XeF_4

68. Zero dipole moment is present in

(A) NH_3 (B) H_2O

(C) cis 1,2 – dichloroethene (D) trans 1,2 –dichloroethene

69. Which molecule does not show zero dipole moment

(A) BF_3 (B) NH_3 (C) CCl_4 (D) CH_4

70. The maximum possible number of hydrogen bonds in which a H_2O molecule can participate-

(A) 4 (B) 3 (C) 2 (D) 6

71. The volatility of HF is low because of :

(A) its low polarizability

(B) the weak dispersion interaction between the molecules

(C) its small molecular mass (D) its strong hydrogen bonding

72. Two ice cubes are pressed over each other and unite to form one cube. Which force is responsible for holding them together :

(A) van der Waal's forces (B) Covalent attraction

(C) Hydrogen bond formation (D) Dipole-dipole attraction

73. Which of the following molecules are expected to exhibit intermolecular H- bonding

I. Acetic acid II. o-nitrophenol III. m-nitrophenol IV. o-boric acid

(A) I, II, III (B) I, II, IV (C) I, III, IV (D) II, III, IV

74. Which one of the following does not have intermolecular H-bonding?

(A) H_2O (B) o-nitro phenol (C) HF (D) CH_3COOH

75. Amongst H_2O, H_2S, H_2Se and H_2Te, the one with the highest boiling point is

(A) H_2O because of hydrogen bonding (B) H_2Te because of higher molecular weight

(C) H_2S because of hydrogen bonding (D) H_2Se because of lower molecular weight

76. Bond order of Be_2 is :

(A) 1 (B) 2 (C) 3 (D)0

77. During the formation of a molecular orbital from atomic orbitals, probability of electron density is :

(A) minimum in the nodal plane (B) maximum in the nodal plane

(C) zero in the nodal plane (D) zero on the surface of the lobe

78. Which of the following has fractional bond order :

(A) O_2^{2+} (B) O_2^{2-} (C) F_2^{2-} (D) H_2^-

79. In N_2 molecule, the atoms are bonded by

(A) One σ, Two π (B) One σ, One π (C) Two σ , One π (D) Three σ bonds

80. Which of the following is true?

(A) Bond order $\alpha \frac{1}{\text{bond lenth}}$ α bond energy

(B) Bond order α bond length $\alpha \frac{1}{\text{bond energy}}$ (C) Bond order $\alpha \frac{1}{\text{bond lenth}}$ $\alpha \frac{1}{\text{bond energy}}$

(D) Bond order α bond length α bond energy

81. Given the species : N_2 , CO, CN^- and NO^+. Which of the following statements are true for the following

(A) All species are paramagnetic (B) The species are isoelectronic

(C) All the species have dipole moment (D) All the species are linear

82. When N_2 goes to N_2^+, the N-N bond distance…. And when O_2 goes to O_2^+, the O-O bond distance…

(A) Decrease, increase (B) Increase, decrease (C) Increase, increase (D) None of these

83. Which of the following species is the least stable

(A) O_2 (B) O_2^{2-} (C) O_2^+ (D) O_2^{1-}

84. The bond order is maximum in

(A) O_2 (B) O_2^{-1} (C) O_2^{+1} (D) O_2^{2-}

85. The bond order in N_2 molecule is

(A) 1 (B) 2 (C) 3 (D) 4

86. Which one is paramagnetic and has the bond order 1/2

(A) O_2 (B) N_2 (C) F_2 (D)H^+_2

87. Which of the following species contain coordinate bond :

(A) $AlCl_3$ (B) CO (C)$[Fe(CN)_6]^{4-}$ (D) N_3^-

88. A π- bond may form between two p_x orbitals containing one unpaired electron each when they approach each other appropriately along :

(A) x- axis (B) y-axis (C) z- axis (D) any direction

89. The octet rule is not obeyed in :

(A) CO_2 (B) BCl_3 (C) PCl_5 (D) SiF_4

90. Which of the following species is(are) isostructural with XeF_4 ?

(A) ICl_4^- (B) I_5^- (C) BrF_4^- (D) XeO_4

91. Which one of the following compounds has bond angle of nearly 90^o?

(A) NH_3 (B) H_2S (C) H_2O (D) SF_6

92. Shape of NH_3 is very similar to :

(A) SeO_3^{2-} (B) CH_3^- (C) BH_3 (D) CH_3^+

93. Which of the following have same shape as NH_2^+?

(A) CO_2 (B) $SnCl_2$ (C) SO_2 (D) $BeCl_2$

94. Which of the following species are linear?

(A) ICl_2^- (B) I_3^- (C) N_3^- (D) ClO_2

95. Which of the following is (are) linear?

(A) I_3^- (B) I_3^+ (C) $PbCl_2$ (D) XeF_2

96. Which of the following compounds possesses zero dipole moment?

(A) Water (B) Benzene (C) Carbon tetrachloride (D) Boron trifluoride

97. Which of the following have identical bond order?

(A) O_2^{2+} (B) NO^+ (C) CN^- (D) CN^+

98. Which of the following has unpaired electron(s)

(A) O_2^{2+} (B) O_2^- (C) NO (D) H_2^+

99. Which of the following species have a bond order of 3?

(A) CO (B) CN^- (C) NO^+ (D) O_2^+

100. Which of the following is correct ?

(A) During N_2^+ formation, one electron is removed from the bonding molecular orbitals

(B) During O_2^+ formation, one electron is removed from the antibonding molecular orbirtals

(C) During O_2^- formation, one electron is added to the bonding molecular orbitals

(D) During CN^- formation , one electron is added to the bonding molecular orbtials

101. Which of the following are diamagnetic?

(A) C_2 (B) O_2^{2-} (C) Li_2 (D) N_2^+

Answer Key

1.	A	2.	C	3.	D	4.	D	5.	D	6.	A	7.	B	8.	C
9.	A	10.	D	11.	A	12.	C	13.	C	14.	D	15.	A	16.	B
17.	B	18.	C	19.	D	20.	C	21.	A	22.	D	23.	D	24.	A
25.	B	26.	A	27.	D	28.	A	29.	A	30.	B	31.	B	32.	C
33.	B	34.	A	35.	C	36.	A	37.	B	38.	A	39.	A	40.	B
41.	D	42.	C	43.	B	44.	D	45.	B	46.	A	47.	A	48.	C
49.	B	50.	A	51.	D	52.	B	53.	C	54.	D	55.	D	56.	B
57.	B	58.	B	59.	C	60.	B	61.	A	62.	B	63.	A	64.	A
65.	D	66.	A	67.	C	68.	D	69.	B	70.	A	71.	D	72.	C
73.	C	74.	B	75.	A	76.	D	77.	C	78.	D	79.	A	80.	A
81.	B	82.	B	83.	B	84.	C	85.	C	86.	D	87.	ABC	88.	BC
89.	BC	90.	AC	91.	BD	92.	AB	93.	BC	94.	ABC	95.	AD	96.	BCD
97.	ABC	98.	BCD	99.	ABC	100.	ABD	101.	ABC						

Below are all the reduced topics for all Class 11th subjects in tabular form

Class 11 English Core - Hornbill Reduced Chapters/ Topics		
Chapter	**Page No.**	**Dropped Chapters/ Topics**
Chapter 4: The Landscape of the Soul by Nathalie Trouveroy	34-40	Full chapter
Chapter 6: The Browning Version by Terrence Rattigan	50-57	Full chapter

Class 11 English Core - Snapshots Reduced Chapters/ Topics		
Chapter	**Page No.**	**Dropped Chapters/ Topics**
Chapter 3: Ranga's Marriage by Venkatesha Iyengar	16-24	Full chapter
Chapter 4: Albert Einstein at School by Patrick Pringle	25-31	Full chapter

Class 11 Hindi Core - Aroh Reduced Chapters/ Topics		
पाठ का नाम	**पृष्ठ**	**संशोधन (घटाए गए विषय)**
स्पीति में बारिश	68-78	पूरा पाठ
आत्मा का ताप	118-126	पूरा पाठ
पथिक	140-144	पूरा पाठ
वे आँखें	145-150	पूरा पाठ

Class 11 Hindi Core - Vitan Reduced Chapters/ Topics		
पाठ का नाम	**पृष्ठ**	**संशोधन (घटाए गए विषय)**
पुस्तक में कोई परिवर्तन नहीं		

Class 11 Physics Reduced Chapters/ Topics		
Chapter	**Page No.**	**Dropped Chapters/ Topics**
1. Physical World	1-15	1.1 What is physics? 1.2 Scope and excitement of Physics 1.3 Physics, technology and Society 1.4 Fundamental forces in Nature 1.5 Nature of physical laws
2: Units and Measurements	18-27	2.3 Measurement of length 2.4 Measurement of mass 2.5 Measurement of time 2.6 Accuracy, precision of instruments and errors in measurement
	36-38	Exercises 2.13, 2.14, 2.19-22, 2.24 – 2.33
3: Motion in a Straight Line	39-43; 51-53; 56 59 – 60; 61-64	3.2 Position, path length and displacement 3.3 Average velocity and average speed 3.7 Relative velocity Exercises 3.5, 3.7 - 3.9, and 3.23 – 3.28 Appendix 3.1
4: Motion in a Plane	76-77;	4.9 Relative velocity in two dimensions
	86-88	Exercises 4.12 – 4.14; 4.26 –4.32

Class 11 Physics Reduced Chapters/ Topics		
5: Laws of Motion	111-113	Exercises 5.24 – 5.40
6: Work, Energy and Power	126-128;	6.10 Various forms of energy: the Law of conservation of energy
	137-139	Exercises 6.24 – 6.29
7: System of Particles and Rotational Motion	164-167;	7.10 Theorems of perpendicular and parallel axes;
	173-175;	7.14 Rolling motion
	178-182	Exercises 7.10, 7.18 – 7.19, 7.21 – 7.33
8: Gravitation	186;	8.11 Geostationary and polar satellites
	196-198;	8.12 Weightlessness
	202 - 206	Exercises 8.3 – 8.5, 8.22 – 8.25 Appendix 8.1
9: Mechanical Properties of Solids	236; 241; 249	9.2 Elastic behaviour of solids; 9.6.2 Determination of Young's Modulus of the Material of a Wire; Exercises 9.17 – 9.21

10: Mechanical Properties of Fluids	260; 261; 269; 276-277; 274-275	10.4.2 Venturi-meter; 10.4.3 Blood Flow and Heart Attack 10.6.6 Detergents and Surface Tension; Appendix 10.1 10.6.6 Detergents and Surface Tension; Exercises 10.21 – 10.31
11: Thermal Properties of Matter	295-296; 302	11.9.5 Greenhouse Effect Exercises 11.21 – 11.22
12: Thermodynamics	313; 313-314; 322	12.9 Heat engines 12.10 Refrigerators and heat pumps Exercises 12.7 and 12.10
13. Kinetic Theory	335; 340	13.6.5 Specific Heat Capacity of Water Exercises 13.11 – 13.14)
14. Oscillations	352-353; 355-359; 365 - 366	14.9 Damped simple harmonic motion 14.10 Forced oscillations and resonance Exercises 14.16 (p. 365), 14.20 – 14.25
15: Waves	384-387; 393-394	15.8 Doppler effect Exercises 15.20 – 15.27
Answers	223-226; 228-234; 396-402; 404	In accordance with the reduction in Exercises in text.

Class 11 Chemistry Reduced Chapters/ Topics		
Chapter	**Page No.**	**Dropped Chapters/ Topics**
Unit V: States of Matter: Gases and Liquids	136-159	Full chapter

Class 11 Chemistry Reduced Chapters/ Topics		
Unit IX: Hydrogen	284-298	Full chapter
Unit X: s- Block Elements	299-314	Full chapter
Unit XI: Some p-Block Elements	315-333	Full chapter
Unit-XIV: Environmental Chemistry	406-422	Full chapter

Class 11 Biology Reduced Chapters/ Topics		
Chapter	**Page No.**	**Dropped Chapters/ Topics**
Chapter 1: The Living World	3-5	1.1 What Is 'Living'?
	11-14	1.4 Taxonomical Aids
	12	1.4.2 Botanical Gardens
	12	1.4.3 Museum
	13	1.4.4 Zoological Parks
Chapter 3: Plant Kingdom	40-41	3.5 Angiosperms
	42-43	3.6 Plant Life Cycles and Alternation of Generations
Chapter 5: Morphology of Flowering Plants	67-68	5.1.2 Modifications of Root
	68-69	5.2.1 Modifications of Stem
	71	5.3.4 Modifications of Leaves
	78-79	5.9.1 Fabaceae
	81	5.9.3 Liliaceae

Class 11 Biology Reduced Chapters/ Topics		
Chapter 6: Anatomy of Flowering Plants	84	6.1 The Tissues
	84-85	6.1.1 Meristematic Tissues
	86-87	6.1.2.1 Simple Tissues (Para 2, 3)
	87-88	6.1.2.2 Complex Tissues (Para 4)
	94	6.4 Secondary Growth
	94-95	6.4.1 Vascular Cambium
	95	6.4.1.2 Activity of the cambial ring
	95	6.4.1.3 Spring wood and autumn wood
	96	6.4.1.4 Heartwood and sapwood
	96-97	6.4.2 Cork Cambium
	97-98	6.4.3 Secondary Growth in Roots
Chapter 7: Structural Organisation in Animals	100 101-102 102-103 104-105 105-106 106-111 106-107 107-108 111 111-112 113-	7.1 Animal Tissues 7.1.1 Epithelial Tissue 7.1.2 Connective Tissue 7.1.3 Muscle Tissue 7.1.4 Neural Tissue 7.3 Earthworm 7.3.1 Morphology 7.3.2 Anatomy 7.4 Cockroach 7.4.1 Morphology 7.4.2 Anatomy Summary (Para 2, 3, 4) Question No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14 (c)

Class 11 Biology Reduced Chapters/ Topics		
	115 120- 121 121- 122	
Chapter 9: Biomolecules	151 152 153 153 160- 161	9.8 Nature of Bond Linking Monomers in a Polymer 9.9 Dynamic State of Body Constituents – Concept of Metabolism 9.10 Metabolic Basis for Living 9.11 The Living State Question No. 2, 3, 5, 8, 10
Chapter 11: Transport in Plants	175- 193	Full chapter
Chapter 12: Mineral Nutrition	194- 205	Full chapter
Chapter 15: Plant Growth and Development	251 252 252 254	15.5 Photoperiodism 15.6 Vernalisation 15.7 Seed Dormancy Question No. 3, 5, 8, 10
Chapter 16: Digestion and Absorption	258- 267	Full Chapter
Chapter 21: Neural Control and Coordination	322 322 322- 323 323 323- 324 324- 326 327 328 329- 330	21.5 Reflex Action and Reflex Arc 21.6 Sensory Reception and Processing 21.6.1 Eye 21.6.1.1 Parts of an eye 21.6.1.2 Mechanism of Vision 21.6.2 The Ear 21.6.2.1 Mechanism of Hearing Summary (para 3&4) Question No. 1 (b, c), 2 (c), 4, (c, d), 5 (e, f, g, h), 6 (b, c), 7, 8 (b, c), 9 (c), 10 (a), 11, 12 (c, d)

Class 11 Mathematics Reduced Chapters/ Topics		
Chapter	**Page No.**	**Dropped Chapters/ Topics**
Chapter 1: Sets	12-13 21-24	1.7 Power set 1.12 Practical Problems on Union and Intersection of Two Sets
Chapter 3: Trigonometric Functions	74-78 466-473	3.5 Trigonometric equations 3.6 Proofs and Simple Applications of Sine and Cosine Formulae
Chapter 4: Principle of Mathematical Induction	86-96	4.1 Introduction 4.2 Motivation 4.3 The Principle of Mathematical Induction
Chapter 5: Complex Number	106 - 108, 108-109, 474-475	5.5.1 Polar representation of a complex number 5.6 Quadratic Equation 5.7 Square –root of a Complex Number
Chapter 6: Linear Inequalities	123-127, 127-129	6.4 Graphical Solution of Linear Inequalities in Two Variables 6.5 Solution of System of Linear Inequalities in Two Variables
Chapter 8: Binomial Theorem	167-171	8.3 General Middle Terms
Chapter 9: Sequences and Series	181-186, 194-196	9.4 Arithmetic Progression (A.) 9.7 Sum to n terms of Special Series
Chapter 10: Straight Lines	210-212 217-220 2220-224 and	10.2.4 Collinearity of three points 10.3.6 Normal forms 10.4 General Equation of a Line 10.6 Equation of Family of Lines Passing Through the Points of Intersection of Two Lines 10.7 Shifting of Origin

Class 11 Mathematics Reduced Chapters/ Topics		
	227-228 477-478 478-479	
Chapter 11: Conic Sections	248	11.5.2 Special cases of an ellipse
Chapter 12: Introduction to Three Dimensional Geometry	273-277	12.5 Section Formula
Chapter 14: Mathematical Reasoning	321-346	14.1 Introduction 14.2 Statements 14.3 New Statements from Old 14.4 Special Words/Phrases 14.5 Implications 14.6 Validating Statements
Chapter-15: Statistics	372-376	15.6 Analysis of Frequency distribution

Class 11 Accountancy Reduced Chapters/ Topics		
Chapter	**Page No.**	**Dropped Chapters/ Topics**
Chapter 2: Theory Base of Accounting	36-38	Textual content on IFRS
Chapter 8: Bills of Exchange	Full Chapter	Full Chapter
Chapter 11: Accounts from Incomplete Records	425-462	Full Chapter
Chapter 12 & 13: Computers in Accounting	463-491	Full Chapters

Class 11 Business Studies Reduced Chapters/ Topics		
Chapter	**Page No.**	**Dropped Chapters/ Topics**
Chapter 3: Private, Public and Global Enterprises	72-76,80	Joint Ventures
Chapter 4: Business Services	107-109,113-114	Warehousing and its functions
Chapter 5: Emerging Modes of Business	134-140,141-142, 143	Outsourcing – concept need and scope
Chapter 8: Sources of Business Finance	202-204, 208-210	Discounting of bill of exchange; ADR and GDR
Chapter 11: International Business	292-307	Complexities involved in International Business, Foreign Trade Promotion: Organisational Support and Incentives; Nature and Importance of Export Processing Zone

Class 11 Economics Reduced Chapters/ Topics		
Chapter	**Page No.**	**Dropped Chapters/ Topics**
Chapter 4: Poverty	57-81	Full Chapter
Chapter 8: Infrastructure	139-161	Full Chapter

20/08

classification of Elements & Periodicity in properties

1. What is the basic theme of organisation in periodic table?

ans The basic theme of Organisation of elements in the periodic table is to simplify and systematize the study of the properties of all the elements and million of their compounds. This has made the study simple because the properties of elements are now studied in form of groups rather than individually.

2. Which important property did Mendeleev use to classify the Elements in his periodic table and did he stick to that?

ans Mendeleev used atomic weight as the basis of classification of Elements in the periodic table. He did stick to it and classify elements into groups and periods.

3. What is the basic difference in approach between Mendeleev periodic law and the Modern periodic law?

ans The basic difference in approach between Mendeleev's Periodic law and Modern periodic law is the change in basis of classification of Elements from atomic weight to atomic number.

4. On the basis of quatum numbers, justify that sixth period of the table should have 32 Elements.

ans The Sixth period correspond to sixth shell. The orbitals present in this shell are 6s, 4f, 5p and 6d. The Maximum number of Electrons which can be present in these sub shell is $2 + 14 + 6 + 10 = 32$. Since the no. of Elements in a period corresponds to the number of Electrons in the shells, the sixth period should have a minimum of 32 Elements.

7. In terms of period & Group where will you locate the 17th group

ans Period - 7
Group - 14
Block - p

8. Why do elements in the same group have similar and chemical properties?

ans The elements in a group have valence shell electronic configuration and hence have similar physical and chemical properties

9. What does atomic radius & Ionic radius really means to you

ans Atomic radius - Distance between the centre of nucleus to the outermost shell of electrons in the atom any Element is called Atomic radius
Ionic Radius - The Ionic radii can be Estimated by measuring the distance between cations and anions in Ionic crystals

10. How do atomic radius vary in a period and in a group? How do you explain the variation?

ans With a group Atomic radius Increases down the group Reason - This is due to continuous increases in the number of Electronic shells or orbitals numbers in the structure of atoms of the Elements down a group

Atomic Radii - from left to right across a period generally decreases due to Increase in Effective nuclear charge from left to right across a period

11. What do you understand by Iso Electronic species? Name a species that will be Iso Electronic with each of the following atoms / Ions
(i) F^- (ii) Ar (iii) Mg^{+2} (iv) Pb^{+}

ans Iso Electronic species are those species (atoms / ions) which have same number of Electrons. Iso Electronic species are:
(i) Na^+ (iii) Na^+
(ii) K^+ (iv) Sr^{2+}

12. Consider the following species:
N^{3-}, O^{2-}, F^-, Na^+, Mg^{2+}, Al^{3+}
(a) What is common in them?
(b) Arrange them in order of Increasing Ionic radii

ans (a) All of them have same no. of Electrons with in them
(b) In Iso Electronic Species, greater the nuclear charge, lesser will be the atomic or Ionic radius
$Al^{+3} < Mg^{+2} < Na^+ < F^- < O^{2-} < N^{3-}$

13. Explain why cations are smaller and anions larger in radii than their parent atoms.

ans A cation is smaller than the parent atom because it has fewer Electrons while its nuclear charge remain the same. The size of anion will be larger than that of parent atom because the addition of one or more Electrons would results in increased among the Electrons and a decrease in Effective nuclear charge

15 Energy of an Electron in the ground state atom is -2.18×10^{-18} J. Calculate the Ionization enthalpy of atomic hydrogen in terms of J Mol^{-1}

ans The Ionization Enthalpy of 1 mole atoms. Therefore ground state Energy of the atoms may be expressed as E (ground state) $= -2.18 \times 10^{-18} \text{ J} \times 6.022 \times 10^{23}$

$= -1.312 \times 10^{6}$ J

Ionization Enthalpy $= 0 - (-1.312 \times 10^{6})$

$= 1.312 \times 10^{6}$ J mol^{-1}

16 Among the second period Elements, the actual Ionization Enthalpies are the order:

$Li < B < Be < O < K < F < Ne$

Explain why

(i) Be has higher ΔH_1 than B

(ii) O has lower ΔH_1 than N and F?

(i) Be $- 1s^2 2s^2$ outer most Electron in present in 2s orbital while in B ($1s^2 2s^1 2p^1$) it is present in 2p orbital. Since 2s - Electron are more strongly attracted by the nucleus than 2p - Electrons, therefore, lesser amount of Energy is required to knock out a 2p - Electron than a 2s - Electron.

(ii) The Electronic Configuration

$N_7 = 1s^2 2s^2 2p_x^1 2p_y^1 2p_z^1$

$O_8 = 1s^2 2s^2 2p_x^2 2p_y^1 2p_z^1$

We can observe in case of nitrogen 2p - orbitals are exactly half the filled. Therefore, it is difficult to remove an Electron from N than O.

17 How would you explain the fact the first ionization Enthalpy of Sodium is lesser than that of Magnesium but its second Ionization Enthalpy is higher than that of magnesium?

ans Electronic configuration of Na and Mg are

Na - $1s^2 2s^2 2p^6 3s^1$

Mg - $1s^2 2s^2 2p^6 3s^2$

First Electron in both cases has to be removed from 3s orbital but the nuclear charge of Na (+11) is lower than of Mg (+12) therefore first ionization Energy of Sodium is lower than that of magnesium.

After the loss of first Electron, the Electron configuration

$Na^+ - 1s^2 2s^2 2p^6$

$Mg^+ - 1s^2 2s^2 2p^6 3s^1$

Here Na^+ has attained Ne configuration which is very stable and hence removal of second require much Energy.

18 What are the various factors due to which the Ionization Enthalpy of the main groups Elements tends to decrease down the group?

ans (i) Atomic size

(ii) Screening / shielding Effect

19 The first ionization Enthalpy values (in kJ mol^{-1}) of grp 13 Elements are

B	Al	Ga	In	Tl
801	577	579	558	589

How would you Explain this deviation from the general trend ?

Ans The decrease in $\Delta_i H$, value from B to Al is due to the bigger size of Al.
In Ga go there is 10 d^1 Electron which does not screen as is done by s and p Electron. The same is with into Tl. The latter has fourteen 4f electron with very poor shielding Effect. This also increases the effective nuclear charge Hence the value of $\Delta_i H$ increases.

20 Which of the following pair of elements would have a more negative element gain Enthalpy.
(i) O or F (ii) F or Cl

(i) Both O and F lie in 2nd period. As we move from O to F the atomic size decreases Due to smaller size of F nuclear charge increases Further, gain of one Electron by,
$F \rightarrow F^-$
F$^-$ ions has inert gas configration, while the gain of one electron by
$O \rightarrow O^-$
Give O^- ions which does not have stable inert gas configration, Consequently, the Energy released is much higher in going form.
In other word Electron gain Enthalpy of F is much more negative than that of Oxygen.

(ii) The reason for deviation is due to the smaller of F. Due to its small size, the Electron repulsion in the relatively compact 2p-subshell are comparatively large hence the attractive for incoming Electron is less in the case of Cl.

22 What is the basic difference between the terms Electron gain Enthalpy and Electronegatively ?

ans Electron gain Enthalpy refers to an isolated gaseous atom to accept an additional Electron to form a negative ion. whereas Electronegativity refers to tendency of the atom of an Element to attract shared pair of Electron towards in a covalent bond.

23 How would you react to the Statement that the Electronegativity of N on pauling Scale is 3.0 in all the nitrogen compounds

ans On pauling Scale, the Electronegatively of Nitrogen (3.0) Indicated that it is sufficiently Electronegative But it is not correct to say that the Electronegativity of nitrogen in all the compounds is 3. It depend on state of Hybridisation. more is the s character more will be the Electronegativity

24 What you Expect the first ionization enthalpies of two isotopes of the same elements to be the same / different ? Justify. Ionization Enthalpy, among the first ionization depends upon Electronic Configuration and nuclear charge Since isotopes of an Elements have the same Electronic and same nuclear charge, they have same ionization

25 What are major difference between metal & non metal

Metals	Non metals
1. Have strong tendency to lose Electrons to form cation	1. Non metals have a strong tendency to accept Electrons to form anions
2. Metals are strong reducing agents	2. Non metal are strong Reducing agent.
3. Metals have low Ionization Enthalpies	3. Non metals have high Ionization Enthalpies
4. Metals form basic oxides and ionic compound	4. Non metals form acidic oxides and covalent compond.

26 Use periodic table and find out
(i) Identify the Element with 5 electrons in outer subshell
(ii) Identify the Element that would tend to lose two Electrons
(iii) Identify the Element that belong tend to gain two Electrons.
(i) Elements belonging to Nitrogen family (group 15) nitrogen
(ii) Elements belonging to Alkaline Earth family (group 2) Magnesium
(iii) Element belonging to Oxygen family (group 16) Oxygen

28 Write the general Electronic configuration of s-p-d- and f-block Elements?
ans (i) s-Block Elements: ns^{1-2} where $n = 2-7$
(ii) p-Block Elements: ns^2np^{1-6} where $n = 2-6$
(iii) d-Block element $(n-1)d^{1-10}ns^{0-2}$ where $n = 4-7$
(iv) f-block elements $(n-2)f^{0-14}(n-1)d^{0-1}ns^2$ where $n = 6-7$

29 The increasing order of reactivity among group I elements is Li < Na < K < Rb < Cs whereas that of group II is F > Cl > Br > I Explain?
ans The Elements of Group I have only one Electron in their respective valence shells and thus have a strong tendency to lose this Electron. The tendency to lose Electron in turn, depends upon the ionization Enthalpy. It is linked with Electronegativity. Since both of them decrease down the group, the reactivity decreases.

30 Assign the position of elements having outer Electronic Configuration,
(i) ns^2np^4 for $n = 3$
(ii) ns^2 for $n = 4$
(iii) $(n-2)f^7(n-1)d^1ns^2$ for $n = 6$ in periodic table?
ans (i) p-block, group-16, 3-rd period } Sulphur
(ii) 4th period, group 4 } Titanium
(iii) 6th period, f block, group 3 } Gadolinium

31 Choose the Incorrect option
(b) ans (b) The d-block has 8 columns, because a maximum of 8 Electrons can occupy all the orbitals in a d-subshell.

33 In modern periodic Table, the period indicate
(c) principal quantum number

34 Predict the formulas of the stable Binary compound, that would formed by the combination
ans (a) Li_2O
(b) Mg_3N_2
(c) MI_3
(d) SiO_2
(e) PF_5
(f) LuF_3

35 Anything that influence the valence Electrons will affect the Chemistry of Element.
ans (c) Nuclear mass

36 The size of iso electronic species F^-, Ne and Na^+ is affected by
ans (a) Nuclear charge

37 Which of the following statement is incorrect in relation to Ionization Enthalpy?
(d) Removal of electron from orbitals bearing lower n value is easier than form orbital having higher n value.

20 Dec

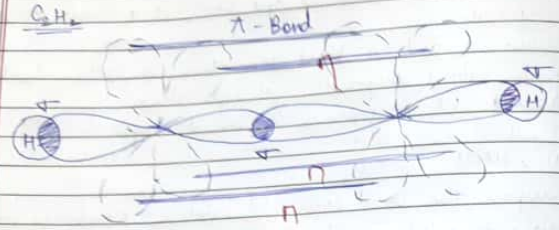
1) BeCl is a polar compound yet $BeCl_2$ is a non polar compound,
2) Show σ and π bond formation in C_2H_6, C_2H_4, C_2H_2 Draw orbital diagrams and hybridisation
3) Account for discrepancy in bond angle
i) $\angle HOH$ in water
ii) $\angle HNH$ in NH_3
4) compare the bond order and relative stability of
i) O_2, O_2^-, O_2^{2-}, O_2^{2+}, O_2^+
ii) N_2, N_2^+
Predict the magnetic character
5) Define Resonance, draw the resonance structure of
i) CO_3^{-2} ii) CO_2 iii) N_3^-
6) Define Hybridisation i) SF_6
7) In PCl_5 are all the P-Cl bond same?
8) Define Hydrogen bond give condition for formation of H bond.
9) Discuss it types and give suitable eg.

1) $BeCl_2$ is non polar because of the symmetric structure it's structure is linear so the Dipole moment of the compound becomes 0. the force of attraction of electron of both chlorine atom neutralises.

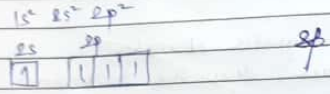
Cl ⟵ Be ⟶ Cl
Electro negativity

So Be-Cl polar bond and overall it is non-polar bond.

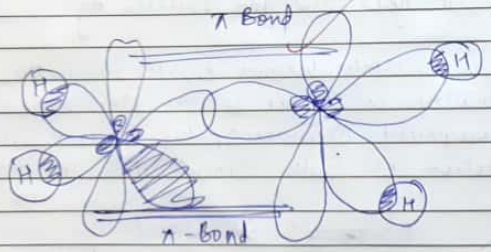
C_2H_2

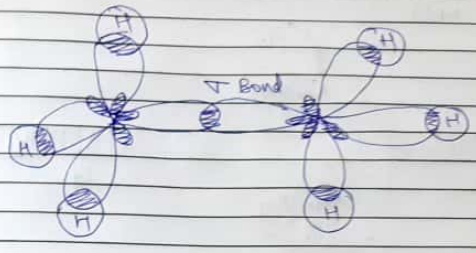


C $1s^2\ 2s^2\ 2p^2$



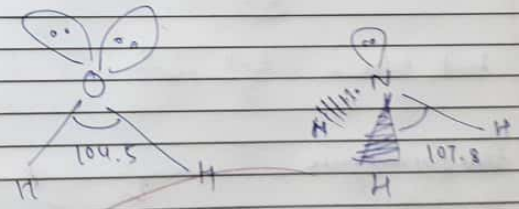
C_2H_4



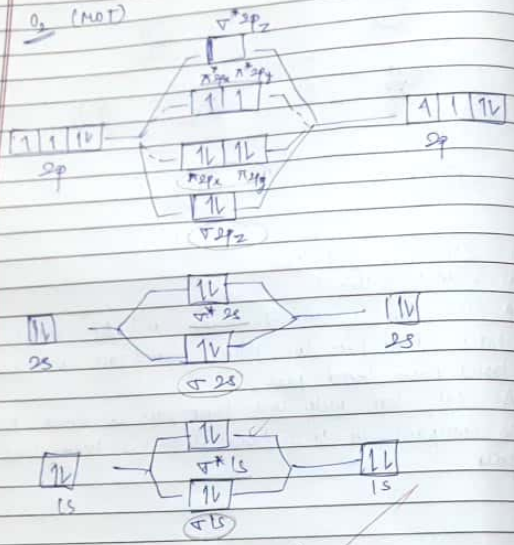


3) (i) $\angle HOH = 104.45°$
(ii) $\angle HNH = 107.8$

As we can see the difference and As VSEPR Theory states lone pair lone pair > bond pair lone pair > bond pair - bond pair.
As NH_3 has only one lone pair so there Repulsion is comparatively less from H_2O as they has two lone pair.



O_2 (MOT)

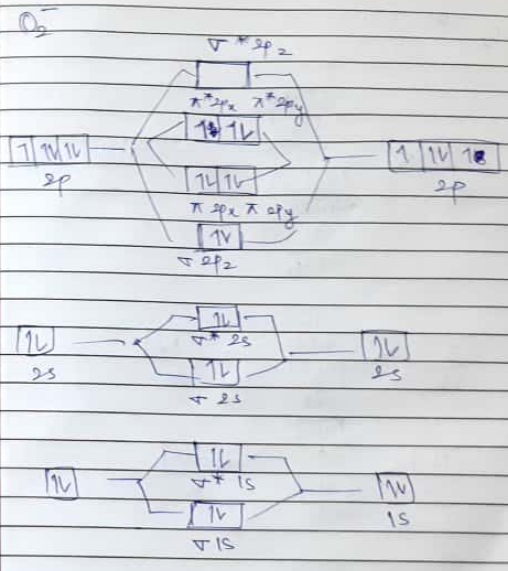


Bond Order = $\frac{8-4}{2} = 2$

paramagnetic

$\sigma 1s^2 \; \sigma^* 1s^2$

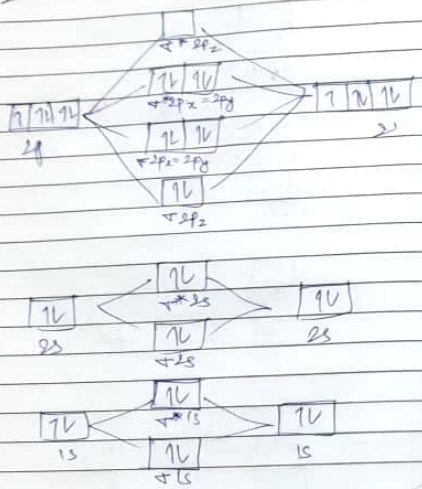
O_2^-



Bond Order $\frac{8-5}{2} = 1.5$

Paramagnetic

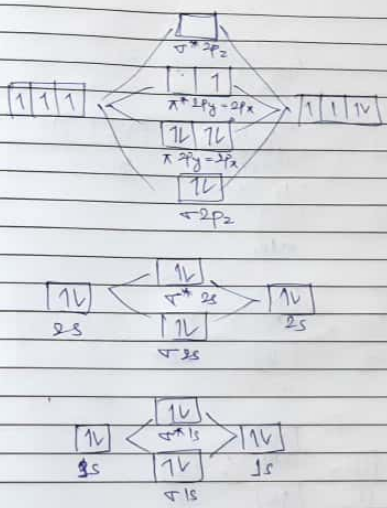
O_2^-



B.N = $\frac{5(2) - 4(2)}{2} = 1$

Bio magnetic

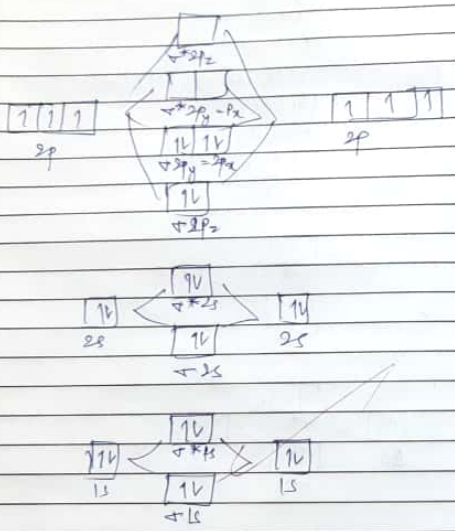
O_2^+



Bond Number = $\frac{5(2) - 5}{2} = 2.5$

Para magnetic

O_2^{+2}



$\frac{5(2) - 4}{2} = 3$ (Di magnetic)

So we could finally reach the stability as

$O_2^{+2} > O_2^{+1} > O_2 > O_2^{-1} > O_2^{-2}$

3(ii)

N_2

$\sigma 1s^2 \quad \sigma^* 1s^2 \quad \sigma 2s^2 \quad \sigma^* 2s^2 \quad \sigma 2p_z^2 \quad \pi 2p_x^2 = 2p_y^2$

$\frac{1}{2}[10 - 4] = 3$ Diamagnetic

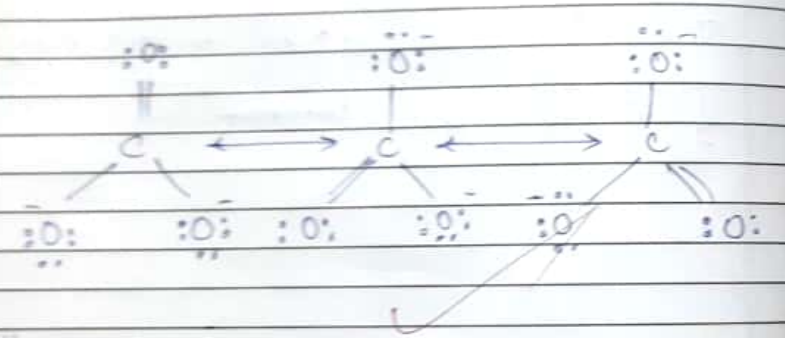
N_2^+

$\sigma 1s^2 \quad \sigma^* 1s^2 \quad \sigma 2s^2 \quad \sigma^* 2s^2 \quad \sigma 2p_z^2 \quad \pi 2p_x^2 = \pi 2p_y^1$

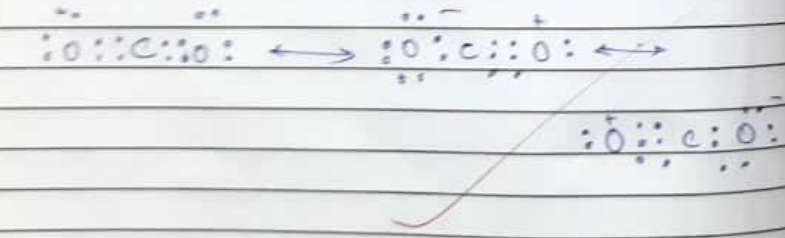
$\frac{1}{2}[10 - 3] = 3.5$ paramagnetic

5) Resonance is a phenomenon when a structure cannot describe a molecule accurately, a number of structures with similar energy, position of nuclei, bonding and non bonding pairs of electrons are taken as the canonical structures of the hybrid which describes the molecules accurately.

(i) CO_3^{2-}



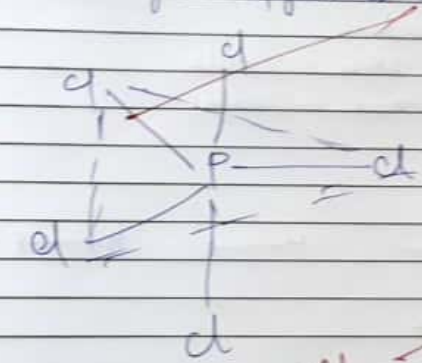
(ii) CO_2

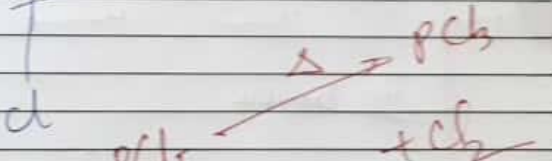


6) Hybridisation is the process of intermixing of the orbitals of slightly different energies so as to redistribute their energies, resulting in the formation of new set of orbitals of equivalent energies and shape.

(i) sp^3d^2

7) No in PCl_5 not all the bonds are same because of their geometry. It is sp^3d hybrised. So it will have Trigonal Bipyramidal structure





3-Cl lie in one plane making 120 degree angle with each other and other 2-Cl line perpendicular to each other. These bonds are called Equatorial bonds. The remaining two P-Cl bonds lie above and below the equatorial plane and make an angle 90° with plane. These bonds called Axial bonds. As Axial bond pair suffer more repulsion from the Equatorial bond pairs, axial bonds are slightly longer than Equatorial bonds.

8) A weak bond between two molecules resulting from an electrostatics attraction between a proton in one molecule and one Electro-negative atom in the other.
i) The molecule should contain a highly Electro-negative atom linked to H-atom
ii) The size of the Electronegative atom should be small.

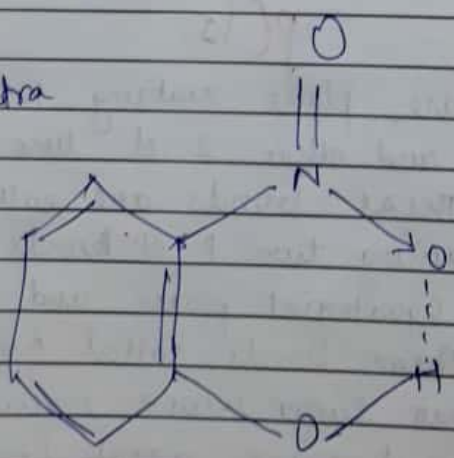
9) Hydrogen bonding
i) Inter - other molecule
ii) Intra - same molecule

iv) Inter

H—F ···· H—F ···· H—F ···· H—F ···· H—F

HF Example

iii) Intra



o-nitrophenol molecule