Chemical Bonding

Sr	Questions	Answers Choice
1	The force which holds the atoms together to form a compound is called	A. A chemical bond B. Van der waal's force C. Dispersion force D. London force
2	Which of the following molecules has unpaired electrons in anti-bonding molecular orbitals?	A. O₂ B. N₂ C. Br₂ D. F₂
3	Which of the following molecules has a net dipole moments	A. CO₂ B. CS₂ C. SO₂ D. CCl₄
4	The driving force for making a bond is	A. To attain noble gas electronic configuration B. To make soled compounds C. To make different compounds D. To make gaseous substances
5	Elements have the tendency to attain 8 electrons in their valence shell. This is known as	A. Octer rule B. Hunds rule C. Pauli exclusion principle D. Auf ban principle
6	When two hydrogen atoms approach to form a chemical bond	A. The repulsive forces dominate the attractive forces B. The attractive forces, dominate the repulsive forces C. The energy of atoms increases D. The two atoms start ionization
7	The atomic radius of hydrogen is 37	A. Pecometer B. Manometer C. Angstrom D. Micrometer
8	Ionic radius, in a period from left to right	A. Increases B. Decreases C. Decreases then increases D. Increases and decreases
9	The equation for the first ionization energy of hydrogen is	
10	Question Image	A. 154 pm B. 133 pm C. 120 pm D. 150 pm
11	The electron affinity of chlorine may be represented by the equation	
12	The electronegativity of elements in a period from left to right	A. Decreases B. Increases C. First decreases then increases D. First increases then decreases
13	A bond between two atoms may be obtained by sharing of electrons such a bond is called	A. An ionic bond B. A coordinate bond C. A dative bond D. A covalent bond
14	Which of the following has highest bond order	
15	Which of the following is a polar molecules	A. Carbon dioxide B. Carbon tetrachloride C. Methanol D. Ethane
16	The shape of methanol, ammonia and water molecule can be explained by assuming	A. Sp³hybridization B. Sp²hybridization C. Sp hybridization D. All of these

17	The bond angles in methane CH_4 are equal to	A. 109.5° B. 107.5° C. 104.5° D. 120°
18	On the basis of VSEPR theory SO_2 is a	A. Liner molecule B. A bent molecule C. A strong molecule D. A gaseous molecule
19	Molecular orbital picture of N_2 indicates	A. One unpaired electron B. Two unpaired electron C. No unpaired electron D. None of these
20	The bond angle depends upon the	A. Types of bonds B. Number of bonds C. Non-bonding electron pairs D. All of the above
21	$SnCl_2$ have _____ shape	A. Planner B. Tetrahedral C. Angular D. None
22	Which for the following has no dipole moment	A. HCl B. H₂S C. H₂O D. CO₂
23	Question Image	A. The ionization energy of A is high and electron affinity of B is low B. The ionization energy of A is low and electron affinity of B is high C. Both the ionization energy of A and electron off affinity of B are high D. Both the ionization energy of A and electron affinity of B are low
24	The number of bonds in nitrogen molecule is	
25	Which of the following statements is not correct regarding bonding molecular orbitals?	A. Bonding molecular orbitals possess less energy than atomic orbitals from which they are formed B. Bonding molecular orbitals have low electron density between the two nuclei C. Every electron in the bonding molecular orbitals contributes to the attraction between atoms D. Bonding molecular orbitals are formed when the electron waves undergo constructive interference
26	In sp^2 hybridization bond angle is _____	A. 120° B. 180° C. 109.5° D. None
27	Which of the hydrogen halides has the highest percentage of ionic character	A. HCl B. HBr C. HF D. HI
28	Which of the following species has unpaired electrons in antibonding molecular orbitals	
29	If two lone pairs are present then bond angle of tetrahedral compound reduces to _____ degrees	A. 109.5° B. 107.5° C. 104.5° D. None
30	Noble gases have the electronic configuration with their valance shell ns^2np^6 except one	A. He B. Ne C. Kr D. Xe
31	The covalent bonds are	A. Unidirectional B. Bi-directional C. Non-directional D. Multi-directional
32	The formation of compounds like PF_5, BCl_3, SF_6 indicates that	A. These halides are ionic B. These halides are covalent C. They are Lewis acids D. Octet rule not obeyed so the rule is not universal
33	Two H-atom combine to form a strong H-molecule due to	A. Increase in potential energy B. Decrease in potential energy

33	Two I Patom combine to form a strong H_2molecule due to	C. Energy remains unchanged D. Distance is increased
34	Mg becomes isoelectronic with neon when it	A. Loses two electrons B. Gains two electrons C. Loses 1 electron D. Gains 1 electron
35	When elements of group I react with the elements of group VIA theory form	A. Ionic bond B. Covalent bond C. Polar bond D. None
36	Shielding effect intervening electrons causes	A. Decreases in atomic radii in a period from right to left B. Increase in atomic radii in a period from left to righ t C. Decrease in atomic radii down the group D. Increase in atomic radii down the group
37	The ionic bonds are	A. Unidirectional B. Bi-directional C. Non-directional D. Multi-directional
38	Size of an anion is increased as compared to its atom because of the	A. Addition of new shell B. Repulsion of electrons in the valence shell C. Decrease in nuclear charge D. Increase in the unclear charge
39	Generally ionization energy of atoms decreases by	A. Decreases in atomic size B. Increase in atomic size C. Increase in nuclear charge D. None of these
40	Which of the following charge	A. Li B. Be C. H D. He
41	Ionization energies increase from left to right along the period due to	A. Increase in nuclear charge B. Repulsion of electron increases C. Repulsion of protons increase D. Atomic size increase along the period
42	Ca, Mg, Be, Ba, belong to the same group, the order of their ionization energy values is	A. Be > Mg> Ca > Ba B. Ba > Ca > Mg > Be C. Ca > Mg > Be > Ba D. Ba > Mg > Ca > Be
43	In a group the atomic size increase downward due to	A. Addition of electronic shells B. Increase in the proton number C. Repulsion of electrons D. All of the above
44	When an electron is absorbed in an empty or partially filled orbital of an atom, the energy released is called	A. Ionization energy B. Potential energy C. Electron affinity D. Bond energy
45	Generally electron affinities for elements in a period from left to right	A. Decreases B. Increases C. Remain same D. Increases alternatively
46	The degree of polarity of molecule is known as its	A. Dipole moment B. Moment arm C. Bond energy D. Ionic character
47	When of the following is isolelectronic with krypton	A. Ca⁺⁺ B. Al⁺⁺⁺ C. Br⁻¹ D. I⁻¹
48	The tendency of an atom to attract shared electron pair towards itself is called	A. Covelent bond B. Electronegativity C. Ionization potential D. Electronic affinity
49	From the difference between expected bond energies for the normal covalent bond and experimentally determined values Pauling calculated the values of	A. Ionization potential of elements B. Electron affinity of elements C. Electronegativity of elements D. Bond length

50	Electronegativity values of the elements F, Cl and Br vary	A. F > Cl > Br B. Br > Cl > F C. Cl > Br > F D. Cl > F > Br
51	The Electro-negatively difference for ionic bond must be greater than	A. 1.6 B. 1.7 C. 1.8 D. 1.0
52	All covalent bonds formed between the two atoms are non-polar when	A. Covalent bond between two non-metal atoms B. Covalent bond between metal and non-metal C. Covalent bond between two atoms of same element D. Covalent bond between metal atoms
53	Atomic number of Al is 13. When it forms ionic bond with oxygen the number of electrons lost by 1 Al atom is	A. 1 B. 2 C. 3 D. 4
54	An ionic compound $M_2S_3$is formed by the metal M,, the metal is	A. Ca B. Ba C. K D. Al
55	Generally the bond formed by metals with non-metals is	A. Ionic B. Covalent C. Polar D. Non- polar
56	Atoms obey octet rule by sharing-electrons making covalent bonds according to	A. Lewis and Kossal theory B. Valance bond theory C. VSEPR theory D. Molecular orbital theory
57	The number of electron pairs shared in carbon tetrachloride molecule is	A. 2 B. 3 C. 4 D. 1
58	Which of the following has polar bond	A. O₂ B. N₂ C. HCl D. Cl₂
59	Which of the following molecules have multiple bonds	A. CH₄ B. C₂H₄ C. C₂H₆ D. CCl₄
60	Which is made by coordinate covalent bond	A. H₃O⁺ B. H₂O C. CH₄ D. HCl
61	The bond order O_2molecule is	A. 1 B. 2 C. 3 D. Zero
62	Coordinate covalent bond is present in the molecules	A. H₂O B. BF₃ C. SiO₂ D. SO₂
63	Tripple bond is present in	A. O₂ B. H₂ C. N₂ D. Cl₂
64	The bond order for He_2molecule is	A. zero B. 1/2 C. 1 D. 2
65	One of the following bonds is polar but compound is non-polar	A. H₂O B. NH₃ C. HCl D. CO₂
66	The overlapping of two partially filled atomic orbital is in such a way that the probability of finding the electron pair is maximum along the axis joining the two nuclei, the bond is	A. Sigma bond B. Pi bond C. Ionic bond D. Non-polar bond

67	In H_2O molecule the bond angle is	A. 90° B. 109.5° C. 107° D. 104.5°
68	In which of the following theories the hybridizationis considered	A. Vsepr B. Lewis C. Molecule orbital D. Valence bond
69	N-atom forms three covalent bonds, its electronic configuration is	
70	Question Image	A. Excitantion of an electron from 2s to 2p-orbital B. Transfer of three electrons from B to the other atoms C. Excitation of two electrons form 2s orbital to 2p orbital D. Formation of molecular ion
71	Which of the following molecules have sp^3hybridized carbon	A. CH₄ B. C₂H₄ C. C₂H₂ D. CO₂
72	The geometry of 4 sp^3hybrid orbitals on an atom is	A. Square planar B. Tetrahedral C. Trigonal planar D. Linear
73	During the formation of a chemical bond the potential energy of the system	A. Decreases B. Increases C. Does not change D. None of these
74	Three sp^2hybrid are co-planar at an angle of	A. 104.5° B. 109.5° C. 107° D. 120°
75	The three N - Hσ-bonds are made by	A. sp³- s overlap B. sp²- s overlap C. P - p overlap D. sp - overlap
76	Nitrogen in $NH_3$is sp^3hybridized but the bond angle in $NH_3$is 107° and not 109.5° due to	A. sp³orbital planar B. sp³orbital trigonal C. Repulsion between lone pair and bonded pairs D. None of them
77	Planar geometry of molecules is due to	A. sp³hybridization B. sp²hybridization C. sp hybridization D. P - p overlap
78	Which of the following molecules have its central atom sp^2hybridized	A. CH₄ B. C₂H₂ C. C₂H₄ D. CCl₄
79	B-atom in BF_3has	A. sp³hybridization B. sp²hybridization C. sp hybridization D. no hybridization
80	Water H_2O is liquid while hydrogen sulphide H_2S is a gas beause	A. Water has higher molecular weight B. Hydrogen sulphide is a weak acid C. Sulphure has high electronegativity than oxyhe D. Water molecules associate through hydrogen bonding
81	Hydrogen chloride molecule contains	A. Covalent bond B. Double bond C. Co-ordinate bond D. Electrovalent bond
82	Among the alkaline earth metals the element forming predominantly covalent compounds is	A. Be B. Mg C. Sr D. calcium
83	Covalent compounds are soluble in	A. Polar solvents B. Non-polar solvents C. Concentrated acids D. All solvents

84	Which of the following geometry is associated with the compound in which the central atom assumes sp^3d hybridization?	A. Planar B. Pyramidal C. Angular D. Trigonal bipyramidal
85	Outer shells of two elements X and Y have two and six electrons respectively. If they combine, the expected formula of compound will be	A. XY B. X₂Y C. X₂Y₃ D. XY₂
86	The bond angle H - O - H in ice ins closest to	A. 120° , 28['] B. 60° C. 90° D. 109°
87	According to MO Theory, the species O_2+ possesses	A. bond order of 2.5 B. three unpaired C. diamagnetic character D. stability lower then O₂
88	Inter molecular forces in solid hydrogen are	A. Covalent forces B. Van der Waal forces or London dispersion forces C. Hydrogen bonds D. All of these
89	XeF_4has shape of	A. Sphere B. Trigonal bipyramidal C. Tetrahedral D. Square planar
90	Which one of these is weakest?	A. lonest bond B. Covalent bond C. Metallic bond D. Van der Waal's forces
91	Which of the following phenomena will occur when two atoms of the elements having same spin of electron approach for bonding?	A. Orbital overlap will not occur B. Bonding will not occur C. Both (A) and (B) are correct D. None of the above are correct
92	Which of the following has unchanged valency?	A. H B. Na C. Fe D. Oxygen
93	A molecule in which sp^2hybrid orbitals are used by the central atom in forming covalent bonds in	A. He₂ B. SO₂ C. PCl₅ D. N₂
94	The nature of interparticle forces in benzene is	A. Dipole-dipole interaction B. Dispersion force C. Ion-dipole interaction D. H-bonding
95	Which of the following species is paramagnetic?	A. CO₂ B. NO C. O²⁻ D. CN
96	The structure of $ICl_2$is	A. Trigonal B. Trigonal bipyramidal C. Octahedral D. Square planar
97	H-bonding is not present in	A. Glycerine B. Water C. Hydrogen sulphide D. Hydrogen fluride
98	The shape of ClO^-_3according to valence shell electron pair repulsion theory will be	A. Planar triangle B. Pyramidal C. Tetrahedral D. Square planar
99	Which of the following hydrides has the lowest boiling point?	A. H₂O B. H₂S C. H₂S3

		D. H₂Te
100	According to VSEPR theory, the shape of the water molecule is	A. Octahedral B. Distorted tetrahedral C. Planar triangle D. Linear
101	The most suitable method of the separation of a mixture of ortho and para-nitrophenol mixed in the ratio of 1: 1 is	A. Distrillation B. Crystallization C. Vapourisation D. Colour spectrum
102	The shape of the molecule $SF_2Cl_2$is	A. Trigonal bipyradmidal B. Cubic C. Octahedral D. Tetrahedral
103	The shape of gaseous $SnCl_2$is	A. Tetrahedral B. Linear C. Angular D. T-shaped
104	The bond order of individual C - C bond is benzene is	A. One B. Two C. Between one and two D. One and two alternately
105	The number of antibonding electron pairs in O^{2-}molecular ion on the basis of MOT is	A. 4 B. 3 C. 2 D. 5
106	Antibonding MO is formed by	A. Addition of atomic orbitals B. Substraction of atomic orbitals C. Multiplication of atomic orbitals D. None of these
107	The boiling point of heavy water is	A. 108°C B. 101.4°C C. 99°C D. 110°C
108	Fluorine molecule is formed by	A. The axial p-p overlap B. The sidewise p-p overlap C. The axial s-p overlap D. The overlap of two sp²hybrid orbitals
109	Shape of $ClO_3$is	A. Triangular pyramidal B. Tetrahedral C. Triangular planar D. Triangular bipyramidal
110	The electronegativeities of F,Cl,Br and I are 4.0,3.0,2.8,2.5 respectively.Hydrogen halide with a high percentage of ionic character is	A. HF B. HCL C. HBr D. HI
111	Number of sigma bonds in $P_4O_{10}$is	A. 6 B. 7 C. 17 D. 16
112	Which of the following has zero depole-moment?	A. ClF B. PCl₃ C. SiF₄ D. CFCl₄
113	In OF_2, number of bond pairs and lone paris of electrons are respectively	A. 2,6 B. 2,8 C. 2,10 D. 2,9
114	Maximum hydrogen bonds in water are	A. 4 B. 3 C. 2 D. 8
115	Which carbon is more electronegative?	A. sp³- hybridized carbon B. sp-hybridized carbon

115	Which carbon is more electronegative?	C. sp²-hybridized carbon D. always same irrespective of its hybrid state
116	The bond order in No is 2.5 while that in NO^+ is 3.Which of the following statements is true for these two species?	A. Bond length in NO⁺is greater than in NO B. Bond length in unpredictable C. Bond length in NO⁺is equal to that in NO D. Bond length in NO is greater than in NO⁺