

(288. How much there is electronegativity difference between the following pair of elements (atoms)? Predict the nature of the bond between them

- a) H and Cl b) H and Na c) Na and I d) K and Cl

Ans.

- a) H and Cl

Covalent bond $1-1=2.2$ $Cl=3.2$

- b) H and Na

Ionic bond $F-1=2.1$ $Na=0.9$

- c) Na and I

Ionic bond $Na=0.9$ $I=2.5$

- d) K and Cl

Ionic bond $K=0.8$
 $Cl=3.2$

Multiple Choice Questions

Difference $-3.2-2.2= -5.4$ — 1.0

1. Which of the following is a building block of matter?

- (a) Atom (b) Molecule
(b) Element (d) Compound

2. The forces responsible for binding the atoms together in a molecule are

called

- (a) Hydrogen bond
(b) Ionic bond
(c) Chemical bond
(d) Covalent bond

3. Atoms achieve stability by attaining electronic configuration of

- (a) Alkali metals
(b) Inert gases
(c) Alkaline earth metals
(d) Coinage metals

4. Attaining two electrons in the

valence shell is called

- (a) Duplet rule (b) Triplet rule
(c) Octet rule (d) All of them

5. All the noble gases have their valence

- (a) Partially filled
(b) Completely filled
(c) Less than 2
(d) More than 2

6. Noble gases are non-reactive, because they do not

- (a) Gain electrons
(b) Lose electrons
(c) Share electrons
(d) All of them

7. Every atom has a natural tendency to achieve electrons in its valence shell

7. Ex

achie

(a) 2 or 6 (b) 2 or 4

(c) 2 or 8 (d) 2 or 10

8. The position of an atom in the

periodic table indicates its

(a) Period number Group
number

Number of neutrons

(b)

(c)

(d) Number of electrons 9. How many valence shell electrons are there in group I elements?

- (a) One (b) Two
(c) Three (d) Four

10. Mode of reaction depends upon its

- (a) Number of valence shell
(b) Number of shells
(c) Number of neutrons
(d) Atomic size

II. Hydrogen and helium follows

- (a) Octet rule (b) Duplet rule

(c) Triplet rule (d) none of them 12.

The formation of ionic bond between two ions is due to (a) Hydrogen bonding

- (b) Metallic forces (c) Electrostatic forces

(d) All of them 13. Which force becomes when two atoms come closer to other?

- (a) Attractive forces
(b) Repulsive forces
(c) Both a and b

(d) None of them 14. The formation of a chemical bond is a result of dominant net

- (a) Attractive forces
(b) Repulsive forces
(c) Both of them
(d) None of them

15. A molecule is formed, energy of a system

- (a) Remains same. (b) Decreased
(c) Increased
(d) Shows variability

16. The valence electrons, which are involved in chemical bonding, are termed as

- (a) Lone pair electrons
(b) Bonding electrons
(c) High energy electrons
(d) Low energy electrons 17.

Which group of the periodic table have the tendency to gain electrons

- (a) Group I (b) Group 18
(c) Group 2 (d) Group 17
electronegative elements have

- (a) High electron affinities
(b) Low electron affinities
(c) Large atomic sizes
(d) High melting points

A bond formed due to complete transfer of electrons from one atom to another is called

- (a) Covalent bond
(b) Hydrogen bond
(c) Ionic bond
(d) Metallic bond

The electronic configuration of sodium atom is

- (a) $1s^2 2s^2 2p^6$
(b) $1s^2 2s^2 2p^5$
(c) $1s^2 2s^2 2p^6 3s^2$
(d) $2s^2 2p^6 3s^1$

21. How many electrons are there in valence shell of sodium atom?

- (a) One (b) Two

- (b)
(c)

(c) Three (d) Four

The electropositive elements have
the tendency to

Gain electrons

Lose electrons

(b)

(c)

(c) Share electron
(d) All of them
23. How many valence shell electrons are there in Na^+ ion?

(c) 10
24. During the formation of ionic bond, heat

(a) Absorbed (b) Released
(c) Remains same (d) Both a or b
25. Which type of attractive forces are present in ionic compounds?

(a) Covalent bonds
(b) Coordinate covalent bonds
(c) Metallic bonds
(d) None of them

26. Covalent bond is most commonly found between the elements of group

(a) 13 to 17 (b) I to 13
(c) 16-18 (d) 15-18
27. A bond formed by the mutual sharing of an electron pair is called

(a) Ionic bond
(b) Covalent bond
(c) Coordinate covalent bond
(d) Metallic bond

28. The electrons that pair up to form a chemical bond are called (a) Lone pair electrons

(b) Bond pair electrons
(c) High energy electrons
(d) Low energy electrons
29. A covalent bond formed by the mutual sharing of two pairs of electrons between bonded atoms is called

(a) Single covalent bond
(b) Double covalent bond

(c) Triple covalent bond
(d) Polar covalent bond

30. Which molecule contains a single covalent bond?

(a) CH_4 (b) C_2H_4
(c) C_2H_2 (d) O_2

31. Nitrogen molecule contain

(a) Polar covalent bond
(b) Single covalent bond
(c) Double covalent bond
(d) Triple covalent bond

32. How many electrons are involved in the formation of single covalent bond?

(a) One (b) Two
(c) Three (d) Four

33. Dative covalent bond is also known

(a) Coordinate covalent bond
(b) Covalent bond (c) Ionic bond
(d) Metallic bond

How many lone pairs are present on nitrogen in ammonia molecule?

(a) One (b) Two

(c) Three (d) Four
35. "Which type of bond is present between NH_3 and BF_3 ?

(a) Covalent bond
(b) Coordinate covalent bond
(c) Ionic bond
(d) Metallic bond

36. A covalent bond formed by two similar atoms is known as

(a) Polar covalent bond
(b) Non-polar covalent bond
(b)
(c)

Metallic bond

Double covalent bond

(b)

(c)

37. Which of the following is an example of polar covalent compound?

- (a) I-Cl
- (c) O₂

38. The difference between electronegativities of hydrogen and chlorine

- (a) 1.0 (b) 2.0
- (c) 3.0 (d) 0.9

39. The electronegativity of hydrogen atom is

- (a) 2.0 (b) 2.2
- (c) 3.0 (d) 2.1

40. Which sign indicates positive and partial charge?

- (a) Sigma (b) Pi
- (c) Delta

41. The nature of a chemical bond can be predicted by using

- (a) Electron affinity values
- (b) Electronegative values
- (c) Ionization energy values

(d) All of them

42. A covalent bond is formed by the elements having

- (a) Low electronegative values
- (b) High electronegative values
- (c) Comparable electronegative values
- (d) High electron affinity values

43. If the difference of electronegativities between two elements is more than 1.7, the bond will be

- (a) Ionic bond
- (b) Single Covalent bond
- (c) Double Covalent bond
- (d) Metallic bond

If the difference of electronegativities between two elements is less than 1.7, the bond will

- (a) Ionic bond
- (b) Covalent bond
- (c) Metallic bond
- (d) All of them

45. In metals, the hold of nucleus over the valence shell electrons is weak due

- (a) Large sized atoms
- (b) High ionization energies
- (c) High electron affinities
- (d) All of them

46. Metals have the tendency to lose electrons due to

- (a) High ionization energy
- (b) Low electron affinity
- (c) Low ionization energy
- (d) None of them

The mobile electrons are responsible for holding the atoms of metals together, forming a

- (a) Ionic bond
- (b) Covalent bond
- (c) Hydrogen bond
- (d) Metallic bond

48. Which of the following is the weakest bond amongst them? (a) Covalent bonding

- (b) Intermolecular forces

- (c) Ionic bonding
(d) Metallic bond
49. The energy required to break the intermolecular forces between one mole of liquid hydrogen (b) High vapour pressure convert it into gas is (c) Low density
(a) 22 kJ (b) 32
(c) 132 kJ (d) 17 50. The energy required to break chemical bond between hydrogen chlorine atoms in 1 mole chloride is
(a) 320
(c) 365 k
51. Intermolecular collectively known as
(a) Vander Waals forces
(b) Electrostatic forces
(c) Adhesive forces
(d) Dipole-dipole forces
52. Hydrogen bonding is found in
(a) Non-polar molecules
(b) Polar molecules
(c) homoatomic molecules
(d) All of them
53. The force of attraction between water molecules is
(a) Ionic bonding
(b) Covalent bonding
(c) Hydrogen bonding
(d) Coordinate covalent
54. The boiling point of water is
(C) 100 °c
55. The boiling point of alcohol is
(a) 44 °c
(C) 53 °c
56. Water has high boiling points as
57. The density of ice at 0°C is
(a) 0.917 g/cm³ (b) 1.24 g/cm³
(d) High surface tension
(c) 1.7 g/cm³ (d) 2.17 g/cm³
58. The density of water at 0°C is
₃ (a) g/cm (b) 1.00 g/cm
₃ (b) 0.70 g/cm (d) 1.17 g/cm³
59. The compounds formed by oppositely charges are known as
(a) Non-polar Covalent compounds
(b) Ionic compounds
(c) Metallic solids
(d) None of them
60. Ionic compounds are good conductors of electricity in
(a) Solid state (b) Molten state
(c) Solution (d) Both b or c
61. Ionic compounds have
↗ (a) High melting and boiling points
(b) High melting and low boiling Points
(c) Low melting and high boiling points
(d) Low melting and boiling points
62. The melting point of NaCl is
(a) 318 °c (b) 1000 °c
(C) 510 °c (d) 800 °c
63. The boiling point of NaCl is
(a) 2000 °c (b) 1413 °c
(c) 1215 °c (d) 1510 °c

64. Which of the following is an example of a covalent compound?

compared to alcohol due to

(a) Hydrogen bonding

(a) $C_6H_{12}O_6$ (b) CH_4

(c) H_2SO_4 (d) All of them

65. At room temperature, higher molecular mass covalent compounds are

- (a) Solids (b) Liquids
(c) Gases (d) All of them

Non-polar compounds insoluble in

- (a) Synthetic (b) Natural

- (a) Water (b) Benzene
(c) Ether (d) Alcohol
(c) Bond pair electrons

- (d) All of them

73. Which type of adhesives is less expensive to produce?

- (c) Both a and b (d) none of them

74. Epoxy adhesives can be made

- (a) Flexible or rigid (b) Transparent or opaque

fluorine is (c) Coloured

- (a) 1.0 (b) 2.0 (d) All of them

- (c) 3.0 (d) 4.075. Epoxy adhesives are

68. The electronegativity value of fluorine is given by which scale? (a) Good heat resistant atoms is given by which scale? (b) Good chemical resistant

- (a) PH (b) Pauling (c) Both a and b
(c) POH (d) None of them (d) None of them

69. Which of the following do not show ions in water? 76. Epoxy adhesives are stable to heat

- (a) Polar Covalent compounds
(b) Ionic compounds
(c) Coordinate covalent compounds

— (d) All of them

70. Malleability is the property by virtue of which a metal can be drawn into

- (a) Sheets (b) Wires
(c) Rods (d) Plates

71. Metals usually have

- (a) High ionization energy
- (b) Low ionization energy
- (c) High electron affinity
- (d) High electronegativity

72. Metals are good conductors of heat and electricity in solid and liquid

up to a temperature of

(a) 1

7

7

0

c

(

b

)

2

2

5

0

C

(C) 320 °c (d) 135 °c

77. Epoxy adhesives are also known as

- (a) Medical adhesives
- (b) Engineering adhesives
- (c) Surgical adhesives
- (d) All of them

78. An atom having six electrons in its valence shell will achieve noble gas electronic configuration by

- (a) Gaining one electron
- (b) Losing all electrons
- (c) Gaining two electrons
- (d) Losing two electrons

79. Considering the electronic

configuration of atoms which atom with

state due to the given atomic number will be the

- (a) Mobile electrons most stable one?
- (b) Lone pair electrons
- (c) 10 (d) 12

80. Octet rule is

- (a) Description of eight electrons
- (b) Picture of electronic configuration
- (c) Pattern of electronic configuration
- (d) Attaining of eight electrons

81. Transfer of electrons between elements result in

- (a) Metallic bonding
- (b) Ionic bonding
- (c) Covalent bonding
- (d) Coordinate covalent bonding

82. When an electronegative element combine with electropositive element the type of bonding is

- (a) Covalent
- (c) Polar covalent
- (d) Coordinate covalent

83. A bond formed between two non metals is expected to be

- (a) Covalent
- (c) Coordinate covalent
- (d) Metallic

84. A bond pair in covalent molecules usually has

- (a) One electron
 - (b) Two electrons
 - (c) Three electrons
 - (d) Four electrons
85. Which of compounds is bonding?
- (a) CH₄ (b) KBr

(c) CO₂ (d) H₂O

86. Ice floats on water because

- (a) Ice is denser than water
- (b) Ice is crystalline in nature
- (c) Water is denser than ice
- (d) Water molecules move randomly

Covalent bond involves the

- (a) Donation of electrons
- (b) Acceptance of electrons
- (c) Sharing of electrons
- (d) Repulsion of electrons

88. How many covalent bonds does C₂H₂ molecule have?

- (a) Two (b) Three
- (c) Four (d) Five

89. Triple covalent bond involves how many numbers of electrons?

- (a) Eight (b) Six
- (c) Four (d) only three

same type

- (a) O₂ and HCl
- (b) O₂ and N₂
- (c) O₂ and C₂H₄
- (d) O₂ and C₂H₂

Identify the compound which is not soluble in water

- (a) C₆H₆ (b) NaCl

(c) KBr (d) MgC12 92. Which of the following is an electron deficient molecule?

(a) NHR

(b) BF3

(d) O2 93. Identify

which pair has polar covalent bonds

(a) O2 and C12

(b) H2O and N2

(c) H2O and C2H2

(d) H2O and I-ICI

94. Which of the following is the weakest force among the atoms?

(a) Ionic forces

(b) Metallic forces