

CHEMICAL BONDING

11. VALENCY, KOSSEL-LEWIS THEORY, LEWIS SYMBOLS

SOLUTIONS

TEACHING TASK

JEE MAINS LEVEL QUESTIONS

1. The number of valency electrons and the valency with respect to hydrogen are equal for **(FA & SA- 2 Marks)**
 A)Oxygen B)Carbon C)Nitrogen D)Fluorine

Answer:B

Solution:Oxygen: 6 valence electrons, valency with hydrogen = 2 (in H₂O) → Not equal.

Carbon: 4 valence electrons, valency with hydrogen = 4 (in CH₄) → Equal.

Nitrogen: 5 valence electrons, valency with hydrogen = 3 (in NH₃) → Not equal.

Fluorine: 7 valence electrons, valency with hydrogen = 1 (in HF) → Not equal.

2. The element having the highest valency with respect to fluorine is
 A)Boron B)Carbon C)Phosphorus D)Sulfur

Answer:D

Solution:Valency with respect to fluorine = number of F atoms bonded in stable compound.

Boron: BF₃ → valency 3.

Carbon: CF₄ → valency 4.

Phosphorus: PF₅ → valency 5.

Sulfur: SF₆ → valency 6.

Highest is Sulfur with 6.

3. A metal 'M' forms a superoxide of the type MO₂. The valency of the metal with respect to oxygen is **(FA & SA- 3 Marks / 4 Marks)**
 A) 1 B) 2 C) 3 D)4

Answer:A

Solution:Superoxide ion is O₂⁻ (charge -1).

So, in MO₂, metal M must be +1 (e.g., KO₂, NaO₂)

4. An element A is trivalent and another element B is monovalent. The formula of the compound formed is
 A)A₃B B)AB₃ C)AB D)A₃B

Answer:B

Solution:Step 1: Identify valencies

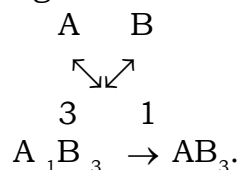
Element A: trivalent →valency = 3

Element B: monovalent \rightarrow valency = 1

Step 2: Exchange valencies to get formula

Using the criss-cross method:

A^3 and B^{1-} gives



5. An atom X has the electronic configuration 2, 8, 2. Another atom Y has the configuration 2, 8, 7. The formula of the compound formed between X and Y is
(FA & SA- 5 Marks / 8 Marks)

A) XY_2 B) X_2Y C) X_7Y_2 D) X_2Y_7

Answer:A

Solution: X (2,8,2) = valency 2 (like Mg).

Y (2,8,7) = valency 1 (like Cl).

Thus: X needs 2 Y atoms $\rightarrow XY_2$ (similar to $MgCl_2$)

6. Two elements P and Q have the following electron configurations: $P = 1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$ and $Q = 1s^2 2s^2 2p^4$. The formula of the compound formed is
A) P_2Q B) PQ_2 C) P_4Q D) PQ

Answer:A

Solution: $P = 1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$

Total electrons = $2+2+6+2+6+1=19$ electrons \rightarrow neutral atom has 19 protons
 \rightarrow Potassium (K).

Valence = 1 (since $4s^1$).

$Q = 1s^2 2s^2 2p^4$

Total electrons = $2+2+4=8 \rightarrow$ Oxygen (O).

Valence = 2 (needs 2 electrons to complete octet).

P: valency 1, Q: valency 2 \rightarrow Criss-cross gives $P_2Q_1 \rightarrow P_2Q$

7. Which of the following elements exhibits both electrovalency and covalency in its common compounds?
A) Magnesium B) Neon C) Chlorine D) Argon

Answer:C

Solution: Chlorine forms ionic compounds (e.g. NaCl) and covalent compounds (Cl_2 , HCl, organic Cl-compounds) — so it shows both electrovalency and covalency

8. In the third period, as we move from Na to Ar, the valency with respect to chlorine
A) increases gradually B) decreases gradually
C) first increases then decreases D) remains constant

Answer:C

Solution: Third period: Na, Mg, Al, Si, P, S, Cl, Ar.

Valency with respect to chlorine = number of chlorine atoms the element bonds with in its chloride.

$NaCl \rightarrow Na$ valency = 1

$MgCl_2 \rightarrow Mg$ valency = 2

$\text{AlCl}_3 \rightarrow \text{Al valency} = 3$

$\text{SiCl}_4 \rightarrow \text{Si valency} = 4$

PCl_3 (or PCl_5) $\rightarrow \text{P valency} = 3$ or 5, but common chloride $\text{PCl}_3 \rightarrow \text{valency} 3$

S_2Cl_2 or $\text{SCl}_2 \rightarrow \text{S valency} = 2$ (also SCl_4 etc., but simple chloride $\text{SCl}_2 \rightarrow \text{valency} 2$)

Cl forms $\text{Cl}_2 \rightarrow \text{valency} 1$ in interhalogen? But with itself? For Cl with Cl, valency 1.

Ar does not form chloride.

So pattern:

Na:1, Mg:2, Al:3, Si:4, P:3, S:2, Cl:1

That is: $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 3 \rightarrow 2 \rightarrow 1$.

So it first increases then decreases.

9. In which of the following compounds is the electrovalency of the cation NOT equal to the electrovalency of the anion?

A) Calcium oxide

B) Sodium sulfide

C) Aluminum fluoride

D) Barium chloride

Answer: B, C, D

Solution: Electrovalency magnitude = charge number.

CaO: Ca^{2+} (2), O^{2-} (2) \rightarrow equal.

Na_2S : Na^+ (1), S^{2-} (2) \rightarrow not equal.

AlF_3 : Al^{3+} (3), F^- (1) \rightarrow not equal.

BaCl_2 : Ba^{2+} (2), Cl^- (1) \rightarrow not equal.

10. The cation and anion are isoelectronic with the same noble gas in

A) Magnesium sulfide

B) Potassium chloride

C) Barium oxide

D) Aluminum phosphide

Answer: B

Solution: Two ions are isoelectronic with the same noble gas if they have the same total number of electrons and that number equals the atomic number of a noble gas.

Let's check each:

A) Magnesium sulfide

Mg^{2+} : Mg atom (12 e^-) \rightarrow loses 2 $e^- \rightarrow$ 10 e^- (like Ne)

S^{2-} : S atom (16 e^-) \rightarrow gains 2 $e^- \rightarrow$ 18 e^- (like Ar)

Not same noble gas.

B) Potassium chloride

K^+ : K atom (19 e^-) \rightarrow loses 1 $e^- \rightarrow$ 18 e^- (like Ar)

Cl^- : Cl atom (17 e^-) \rightarrow gains 1 $e^- \rightarrow$ 18 e^- (like Ar)

Both 18 $e^- \rightarrow$ Argon configuration.

C) Barium oxide

Ba^{2+} : Ba atom (56 e^-) \rightarrow loses 2 $e^- \rightarrow$ 54 e^- (like Xe)

O^{2-} : O atom (8 e^-) \rightarrow gains 2 $e^- \rightarrow$ 10 e^- (like Ne)

Not same noble gas.

D) Aluminum phosphide

Al^{3+} : Al atom (13 e^-) \rightarrow loses 3 $e^- \rightarrow$ 10 e^- (like Ne)

P^{3-} : P atom (15 e^-) \rightarrow gains 3 $e^- \rightarrow$ 18 e^- (like Ar)

Not same noble gas.

JEE ADVANCED LEVEL QUESTIONS

Multi correct answer type:

11. The octet rule is satisfied in which of the following species?
 A) NH_4^+ (Ammonium ion) B) H_3O^+ (Hydronium ion)
 C) CH_4 (Methane) D) BH_3 (Borane)

Answer:A,B,C

Solution:A) NH_4^+

N has 5 valence electrons; forms 4 bonds \rightarrow 8 electrons around N \rightarrow octet satisfied

B) H_3O^+

O has 6 valence electrons; in H_3O^+ it forms 3 bonds + 1 lone pair \rightarrow 8 electrons \rightarrow octet satisfied

C) CH_4

C forms 4 bonds \rightarrow 8 electrons \rightarrow octet satisfied

D) BH_3

Boron has only 6 electrons (electron-deficient) \rightarrow does NOT satisfy octet

12. Which of the following elements can exhibit a valency of 4?
 A) Silicon B) Lead C) Carbon D) Phosphorus

Answer:A,B,C

Solution:A) Silicon

Group 14, common valency 4 (e.g., SiCl_4 , SiO_2).

B) Lead

Group 14, can show +4 oxidation state (e.g., PbO_2), though +2 is more common in some compounds.

C) Carbon

Group 14, valency 4 (e.g., CH_4 , CCl_4).

D) Phosphorus

Can show valency 5 mostly (PCl_5), but "valency" can mean combining capacity: in PCl_3 valency 3, in PCl_5 equivalent to 5 bonds, not 4.

Statement Type:

- A) Both statement I and II are correct and statement II is correct explanation of statement I.
 B) Both statement I and II are correct and statement II is not correct explanation of statement I.
 C) Statement I is correct and statement II is incorrect.
 D) Statement I is incorrect and statement II is correct.
13. **Statement I** : The Lewis symbol for a carbon atom has four valence electrons represented by dots.
Statement II : Carbon achieves a stable octet configuration by sharing four electrons in its compounds.

Answer:A

Solution:Statement I:The Lewis symbol for a carbon atom has four valence electrons

represented by dots.

Correct — Carbon (atomic number 6) has electronic configuration 2,4 ? so 4 valence electrons.

Statement II: Carbon achieves a stable octet configuration by sharing four electrons in its compounds.

Correct — Carbon forms 4 covalent bonds by sharing 4 electrons (e.g., CH₄).

14. **Statement I** : The valency of nitrogen in ammonia (NH₃) is 3.
Statement II : Nitrogen has 5 valence electrons and completes its octet by gaining 3 electrons.

Answer:C

Solution: Statement I is correct because nitrogen forms three single covalent bonds with hydrogen atoms in an ammonia molecule to complete its octet, resulting in a valency of 3.

Statement II is incorrect. While nitrogen does have 5 valence electrons, it completes its octet in ammonia by sharing three electrons with hydrogen, not gaining them outright to form an ion [1].

Comprehension Type:

Atoms attain stable electronic configuration (duplet and octet configuration) either by transfer (or) by sharing of electrons.

Electrovalency : The number of electrons transferred is called **Electrovalency** and bond resulted is called Electrovalent bond.

Co-valency: The number of electrons shared is called **co-valency** and the bond resulted is called covalent bond.

15. According to the paragraph, what is the fundamental difference between electrovalency and covalency?
- A) Electrovalency involves sharing electrons, while covalency involves transferring electrons.
 B) Electrovalency leads to duplet configuration, while covalency leads to octet configuration.
 C) Electrovalency involves the transfer of electrons, while covalency involves the sharing of electrons.
 D) Electrovalency results in a covalent bond, while covalency results in an electrovalent bond.

Answer:C

Solution: Electrovalency → transfer of electrons.

Covalency → sharing of electrons.

16. The number of electrons an atom shares to achieve a stable configuration determines its:
 A) Electrovalency B) Atomicity C) Co-valency D) Valence electrons

Answer:C

Solution: The number of electrons shared is called co-valency.

Matrix Matching Type:17. **Column-I** **Column-II**

- | | |
|--------------|----------|
| | .. |
| a) Fluorine | 1) $O:$ |
| | .. |
| | .. |
| b) Oxygen | 2) $:F:$ |
| | . |
| c) Magnesium | 3) Mg: |
| d) Carbon | 4) $:C:$ |

Answer: a-2, b-1, c-3, d-4

Solution:

- | | |
|--------------|----------|
| | .. |
| a) Fluorine | 2) $:F:$ |
| | . |
| | .. |
| b) Oxygen | 1) $O:$ |
| | .. |
| c) Magnesium | 3) Mg: |
| d) Carbon | 4) $:C:$ |

Integer type:

18. The neutral atom shows 3 electrons in the outermost shell (L-shell) and 2 electrons in the inner shell (K-shell). What is the atomic number of this element?

Answer:5Solution:K-shell ($n=1$) holds 2 electrons \rightarrow given 2 electrons in K-shell.L-shell ($n=2$) holds up to 8 electrons \rightarrow given 3 electrons in L-shell.Total electrons = $2 + 3 = 5$.Atomic number = 5 \rightarrow element Boron.

19. An element 'X' has the electronic configuration 2, 8, 6. What is the number of covalent bonds it typically forms in its most common hydride?

Answer:2Solution:Electronic configuration 2, 8, 6 \rightarrow element Sulfur (atomic number 16).Most common hydride = H_2S .In H_2S , S forms 2 covalent bonds with H atoms.

LEARNERS TASK**CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ'S)**

1. The force that holds two atoms together in a compound is known as a:
A) Valency B) Chemical Bond C) Atomicity D) Electron Affinity

Answer: B

Solution: A) Valency – number of bonds an atom can form.

B) Chemical Bond – force holding atoms together. ----->Correct

C) Atomicity – number of atoms in a molecule.

D) Electron Affinity – energy change when an electron is added.

2. Which of the following elements has a completely filled valence shell in its atomic state?
A) Sodium B) Chlorine C) Argon D) Carbon

Answer: C

Solution: A) Sodium – 1 valence electron.

B) Chlorine – 7 valence electrons.

C) Argon – 8 valence electrons (noble gas) ----->Correct.

D) Carbon – 4 valence electrons.

3. The valency of an element is primarily determined by:
A) Its atomic mass
B) The number of electrons in its nucleus
C) The number of electrons in its outermost shell
D) Its density

Answer: C

Solution: A) Its atomic mass – irrelevant.

B) The number of electrons in its nucleus – none (nucleus has protons and neutrons).

C) The number of electrons in its outermost shell ? – determines bonding behavior.

D) Its density – irrelevant.

4. The maximum valency exhibited by an element with atomic number 15 is:
A) 3 B) 5 C) 6 D) 8

Answer: B

Solution: Atomic number 15 = phosphorus (2,8,5).

Maximum valency = 5 (e.g., in PCl_5).

5. The valency of nitrogen in ammonia (NH_3) is:
A) 1 B) 3 C) 5 D) 7

Answer: B

Solution: Nitrogen in NH_3 forms 3 covalent bonds with hydrogen atoms.

Therefore, valency = 3

6. The maximum number of covalent bonds typically formed by a carbon atom is:
A) 2 B) 3 C) 4 D) 6

Answer:C

Solution:Carbon has 4 valence electrons and needs 4 more electrons to complete octet.

Therefore, it can form 4 covalent bonds

7. Which of the following species has an incomplete octet in its normal compounds?
A) Water (H_2O) B) Ammonia (NH_3)
C) Boron trifluoride (BF_3) D)Methane (CH_4)

Answer:C

Solution:Water (H_2O) → Oxygen has 8 electrons → complete octet

Ammonia (NH_3) → Nitrogen has 8 electrons → complete octet

Boron trifluoride (BF_3) → Boron has 6 electrons → incomplete octet

Methane (CH_4) → Carbon has 8 electrons → complete octet

8. In a Lewis structure, a single line between two atoms represents:
A) One electron B)A pair of electrons
C) Three electrons D)An ionic bond

Answer:B

Solution:A single bond = 1 pair of electrons ($2 e^-$).

9. How many valence electrons should be shown in the Lewis dot structure of phosphorus (atomic number 15)?
A) 3 B) 5 C) 8 D) 15

Answer:B

Solution:Phosphorus: electronic configuration → $1s^2 2s^2 2p^6 3s^2 3p^3$ → valence electrons = 5.

10. The main purpose of drawing a Lewis dot structure is to:
A) Calculate the molecular weight
B) Show the nuclear composition
C) Represent valence electrons and predict bonding
D) Determine the physical state at room temperature

Answer:C

Solution:A) Calculate the molecular weight – no.

B) Show the nuclear composition – no.

C) Represent valence electrons and predict bonding – yes.

D) Determine the physical state – no.

JEE MAINS LEVEL QUESTIONS

1. In the formation of magnesium oxide (MgO), the magnesium atom attains the electron configuration of _____ while the oxygen atom attains the electron configuration of _____.
(FA & SA- 3 Marks / 4 Marks)
 A) neon; neon B) argon; neon C) neon; argon D)helium; neon

Answer:ASolution:Magnesium (Mg): atomic number 12 → electron configuration: $1s^2 2s^2 2p^6 3s^2$ Loses 2 electrons to form $Mg^{2+} \rightarrow 1s^2 2s^2 2p^6 \rightarrow$ same as Neon (10 electrons).Oxygen (O): atomic number 8 → electron configuration: $1s^2 2s^2 2p^4$ Gains 2 electrons to form $O^{2-} \rightarrow 1s^2 2s^2 2p^6 \rightarrow$ same as Neon (10 electrons).

2. In the formation of water (H₂O), each hydrogen atom attains the electron configuration of _____ while oxygen attains the electron configuration of _____.
 A) helium; neon B)neon; argon
 C) helium; argon D) neon; neon

Answer:ASolution:Each H → $1s^2$ (helium); O → 2,8 (neon)

3. A Lewis dot symbol shows an element with six valence electrons. This could represent:
 A)Carbon B)Nitrogen C) Oxygen D)Fluorine

Answer:C

Solution:Carbon → 4 valence electrons.

Nitrogen → 5 valence electrons.

Oxygen → 6 valence electrons .

Fluorine → 7 valence electrons.

4. How many valence electrons should Sodium have in its Lewis dot model?
 A) 1 B) 2 C) 8 D) 11

Answer:ASolution:Sodium (atomic number 11): electron configuration $1s^2 2s^2 2p^6 3s^1 \rightarrow$ valence electrons = 1.

5. A Lewis dot structure shows an element with three unpaired electrons and one lone pair. This could represent:
(FA & SA- 5 Marks / 8 Marks)
 A) Nitrogen B) Phosphorus C) Aluminum D)Boron

Answer:A,B

Solution:Group 15 elements.

Nitrogen (N): 2,5 → 5 valence electrons → 3 unpaired + 1 pair

Phosphorus (P): 2,8,5 → 5 valence electrons → 3 unpaired + 1 pair

6. What is the correct Lewis dot structure for a neutral atom of phosphorus (atomic number 15)?
(FA & SA- 2 Marks)

- A) The symbol P with 3 dots B) The symbol P with 5 dots
 C) The symbol P with 8 dots D) The symbol P with 15 dots

Answer:B

Solution: Phosphorus: group 15 \rightarrow 5 valence e^- \rightarrow symbol P with 5 dots.

7. If elements achieved stability with 4 electrons in their valence shell (rather than 8), what would be the most stable ion formed by oxygen?
 A) O^{2+} B) O^+ C) O^- D) O^{2-}

Answer:A

Solution: If the stable configuration required 4 valence electrons instead of 8:

Oxygen has 6 valence electrons initially.

To reach 4, it must lose 2 electrons (not gain).

Losing 2 electrons $\rightarrow O^{2+}$

8. Which of the following statements about chemical bonding is INCORRECT?
 A) Ionic bonds result from complete transfer of electrons from one atom to another.
 B) Covalent bonds involve sharing of electron pairs between atoms.
 C) In coordinate bonds, both electrons are contributed by the same atom.
 D) Metallic bonding involves the transfer of electrons from metal to non-metal atoms.

Answer:D

Solution: Metallic bonding is delocalized "electron sea" among metal atoms, not transfer to non-metals.

9. An element X has the electron configuration $1s^2 2s^2 2p^6 3s^2 3p^3$. How many unpaired electrons are present in its Lewis dot structure?
 A) 1 B) 3 C) 5 D) 8

Answer:B

Solution: Phosphorus: valence electrons = $3s^2 3p^3 \rightarrow 3p^3$ has 3 unpaired electrons.
 Lewis dot: 3 unpaired, 1 lone pair \rightarrow total 5 e^- , unpaired = 3.

10. How many electrons are there in the valence shell of the Al^{3+} ion?
 A) 0 B) 3 C) 8 D) 10

Answer:C

Solution: A neutral aluminum (Al) atom has 13 electrons with an electron configuration of $1s^2 2s^2 2p^6 3s^2 3p^1$. The valence shell is the outermost energy level, which is the third shell, containing 3 electrons ($3s^2 3p^1$). When a neutral aluminum atom forms the Al^{3+} ion, it loses three electrons from its outermost shell. This results in the electron configuration of $1s^2 2s^2 2p^6$. The new outermost, or valence, shell is the second shell, which now contains a total of $2+6=8$ electrons.

JEE ADVANCED LEVEL QUESTIONS

Multi correct answer type:

11. Which of the following statements about valency is/are correct?
- The valency of Nitrogen in N_2 is 3.
 - The valency of Oxygen in H_2O is 2.
 - The valency of Carbon in CO_2 is 4.
 - The valency of Neon is 8.

Answer:A,B,C

Solution:A) True — Each N atom forms 3 covalent bonds in $N \equiv N$.
 B) True — O forms 2 covalent bonds in water.
 C) True — Carbon forms 4 bonds (double bond with each O).
 D) False — Neon is inert, valency = 0

12. Which of the following statements regarding chemical bonding is/are correct?
- In NH_4^+ , the covalency of nitrogen is 4.
 - Elements of Group 2 always have an electrovalency of +2.
 - The maximum covalency of boron is 3.
 - Chlorine can exhibit both electrovalency and covalency.

Answer:A,B,D

Solution:A) Covalency = number of covalent bonds. In NH_4^+ , N forms 4 single covalent bonds to H.
 B) Elements of Group 2 always have an electrovalency of +2.
 Electrovalency = ionic charge. Group 2 metals in ionic compounds are +2.
 C) Boron has 3 valence e^- , max covalency in simple compounds is 3 (e.g., BF_3).
 But in $[BF_4]^-$, B has covalency 4 (coordinate bonds included).
 So maximum covalency is 4, not 3
 D) Electrovalency: e.g., Cl^- in $NaCl \rightarrow$ electrovalency 1.
 Covalency: e.g., Cl_2 , $HCl \rightarrow$ covalency 1.

Statement Type:

- Both statement I and II are correct and statement II is correct explanation of statement I.
 - Both statement I and II are correct and statement II is not correct explanation of statement I.
 - Statement I is correct and statement II is incorrect.
 - Statement I is incorrect and statement II is correct.
13. **Statement I** : The valency of an element can be determined from its position in the Modern Periodic Table.
Statement II : The group number of main group elements indicates the number of valence electrons.

Answer:A

Solution:Statement I: Correct — For main-group elements, valency relates to group number.
 Statement II:Correct — Group 1 \rightarrow 1 valence electron, Group 17 \rightarrow 7, etc.
 Does II explain I \rightarrow Yes. Valency depends on valence electrons, and valence electrons come from the group number

14. **Statement I** : Sodium (Na) has a valency of 1.
Statement II : Sodium has 1 electron in its outermost shell, which it loses to achieve a stable configuration.

Answer:A

Solution:Statement I: Yes, forms Na^+ in compounds \rightarrow valency 1.

Statement II: Yes, electronic config: 2,8,1 \rightarrow loses 1 e^- \rightarrow neon config.

Comprehension Type:

Valency can also be defined as the number of hydrogen atoms which combine directly or indirectly with one atom of an element.

Example: One atom of nitrogen combines with three atoms of hydrogen to form ammonia gas. So, the valency of nitrogen is 3.

15. One atom of phosphorus combines with three atoms of hydrogen to form phosphine gas (PH_3). One atom of phosphorus also combines with five atoms of chlorine to form phosphorus pentachloride (PCl_5). Based on the definition provided, what is the valency of phosphorus?
 A)3 B) 5 C) 8 D)It shows variable valency

Answer:D

Solution:Given:In PH_3 , phosphorus combines with 3 hydrogens \rightarrow valency = 3

In PCl_5 , phosphorus combines with 5 chlorines \rightarrow valency = 5

Since phosphorus can show both 3 and 5

16. An element 'X' has a valency of 4. What is the molecular formula of the compound it forms with hydrogen?
 A) XH B) XH_2 C) XH_3 D) XH_4

Answer:D

Solution:Valency of X = 4.

Valency of H = 1.

So formula with hydrogen: XH_4 (like CH_4).

Matrix Matching Type:

- | 17. Column-I (Atomic Number) | Column-II (Valency) |
|--------------------------------|-----------------------|
| a) 11 | 1)4 |
| b) 17 | 2)1 |
| c) 6 | 3)3 |
| d) 35 | 4)0 |

Answer:a-2,b-2,c-1,d-2

Solution:

- | | |
|-------|-----|
| a) 11 | 2)1 |
| b) 17 | 2)1 |
| c) 6 | 1)4 |
| d) 35 | 2)1 |

Integer type:

18. Valency of Oxygen in water (H_2O) is _____

Answer:2

Solution:Oxygen forms 2 covalent bonds in water.

19. How many valence electrons does a neutral atom of Phosphorus (atomic number 15) have? _____

Answer:5

Solution:Electronic configuration: 2, 8, 5
So, valence electrons = 5

20. An element 'X' has the electronic configuration 2, 8, 8, 2. What is the valency of this element? _____

Answer:2

Solution:Element X has 2 valence electrons → Group 2 element
Valency = 2

KEY

TEACHING TASK									
JEE MAINS LEVEL QUESTIONS									
1	2	3	4	5	6	7	8	9	10
B	D	A	B	A	A	C	C	B,C,D	B
JEE ADVANCED LEVEL QUESTIONS									
11	12	13	14	15	16	17	18	19	
A,B,C	A,B,C	A	C	C	C	a-2, b-1, c-3, d-4	5	2	
LEARNERS TASK									
CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ'S)									
1	2	3	4	5	6	7	8	9	10
B	C	C	B	B	C	C	B	B	C
JEE MAINS LEVEL QUESTIONS									
1	2	3	4	5	6	7	8	9	10
A	A	C	A	A,B	B	A	D	B	C
JEE ADVANCED LEVEL QUESTIONS									
11	12	13	14	15	16	17	18	19	
A,B,C	A,B,D	A	A	D	D	a-2,b-2,c-1,d-2	2	5	
20									
2									