EASY CHEMISTRY
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HYBRIDISATION – NEET TRICKS

HYBRIDISATION | NEET QUICK TRICKS 🔥

1. STERIC NUMBER TRICK

Steric Number = Number of σ bonds + Number of lone pairs

2. QUICK TABLE

SN	Hybridisation	Geometry	Bond Angle
SN 2	→ sp →	Linear	180°
SN 3	→ sp^2 →	Trigonal planar	120°
SN 4	→ sp^3 →	Tetrahedral	109.5°
SN 5	→ sp^3d →	Trigonal bipyramidal	
SN 5	→ sp^3d →	Trigonal bipyramidal	
SN 6	→ sp^3d^2 →	Octahedral	

3. IMPORTANT EXAMPLES

- $BeCl_2$ → sp → Linear
- BF_3 → sp^2 → Trigonal planar
- CH_4 → sp^3 → Tetrahedral
- NH_3 → sp^3 → Pyramidal
- H_2O → sp^3 → Bent
- PCl_5 → sp^3d
- SF_6 → sp^3d^2

NEET GOLDEN TRICK

"σ bonds + Lone Pairs = Steric Number.
Steric Number देखो → Hybridisation तुरंत बताओ!"

"NEET में Hybridisation के सवालों के लिए यह trick याद रखो!"

SINGLE ION KI HYBRIDISATION KAISE NIKALE? 🔥

SECTION 1 — GOLDEN FORMULA

$$\text{STEric Number} = \frac{1}{2}[V + M - C + A]$$

- ⊕ V = valence electrons of central atom
- ⊕ M = number of monovalent atoms attached
- ⊕ C = positive charge
- ⊖ A = negative charge

Steric Number	→	Hybridisation
2	→	sp
3	→	sp^2

SECTION 2 — VERY EASY STEPS

STEP 1 → Central atom identify करो 👁

STEP 2 → V, M, C, A identify करो

STEP 3 → Formula लगाओ

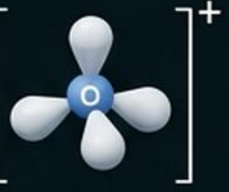
STEP 4 → Steric Number निकालो

STEP 5 → Hybridisation directly identify करो sp^3

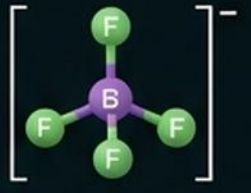
SECTION 3 — SOLVED ION EXAMPLES

NH_4^+
V = 5
M = 4, C = 1 = 1
SN = 4
Hybridisation = sp^3

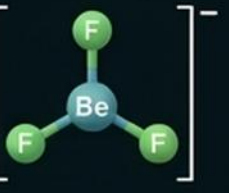
H_3O^+
V = 6
M = 3, C = 1 = 1
SN = 4
Hybridisation = sp^3



BF_4^-
V = 3
M = 4, A = 1 = 1
SN = 4
Hybridisation = sp^3



BeF_3^-
V = 2
M = 3, A = 1 = 1
SN = 3
Hybridisation = sp^2



SECTION 4 — NEET TRICK

"Charge ko kabhi mat bhoolna!"

Positive charge → ⊕ subtract | Negative charge → ⊖ add

SECTION 5 — EXTRA PRACTICE EXAMPLES

- CO_3^{2-} → central C → sp^2
- NO_3^- → central N → sp^2
- NH_2^- → central N → sp^3
- OH^- → central O → sp^3

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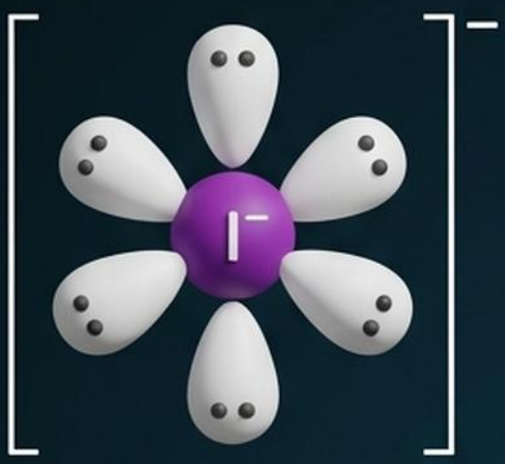
MONOATOMIC IONS KI HYBRIDISATION 🔥

Example: I^- — STEP BY STEP



Iodine valence electrons = **7**
Negative charge = **+1** electron
Total electrons = **8**

8 electrons = **4** electron pairs
Steric Number = 4
Therefore: I^- → **sp^3**

GOLDEN TRICK

For a **monoatomic ion:**

Count total valence electrons after design considering charge. → Divide by 2 = number of electron pairs. →

Electron pairs/ Steric Number:
2 → **sp**
3 → **sp^2**
4 → **sp^3**
5 → **sp^3d**
6 → **sp^3d^2**

IMPORTANT: Clearly distinguish monoatomic ions from polyatomic ions. Do not confuse **"number of atoms"** with **"number of electron pairs"**.

10 SOLVED EXAMPLES

1. F^- → 4 electron pairs → **sp^3**
2. Cl^- → 4 electron pairs → **sp^3**
3. Br^- → 4 electron pairs → **sp^3**
4. I^- → 4 electron pairs → **sp^3**
5. O^{2-} → 4 electron pairs → **sp^3**
6. S^{2-} → 4 electron pairs → **sp^3**
7. N^{3-} → 4 electron pairs → **sp^3**
8. P^{3-} → 4 electron pairs → **sp^3**
9. Na^+ → 4 electron pairs → **sp^3**
10. Mg^{2+} → 4 electron pairs → **sp^3**

NEET TRICK

"Monoatomic ion mein pehle **TOTAL VALENCE ELECTRONS** count Charge ko correctly adjust karo. **Total electrons ÷ 2 = electron pairs = Steric Number.**"

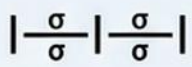
I^- → 8 electrons → 4 pairs → **sp^3**
Na^+ → 10 electrons → 5 pairs → **sp^3d**

I_3^- JAISE MOLECULES KI HYBRIDISATION
NEET MASTER TRICK 🔥

MAIN EXAMPLE: I_3^-

STEP 1 — CENTRAL ATOM:
Middle iodine (I) is the central atom.

STEP 2 — COUNT SIGMA BONDS: Central I forms 2 sigma bonds with two terminal iodine atoms.

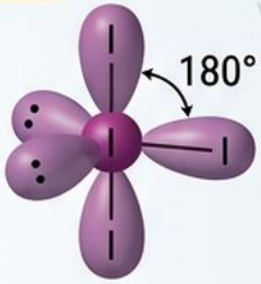


STEP 3 — COUNT LONE PAIRS: Central iodine has 3 lone pairs.

STEP 4 — STERIC NUMBER:
Steric Number = **σ bonds + lone pairs** = 2 + 3 = **5**

STEP 5 — HYBRIDISATION: Steric Number 5 → **sp^3d**

STEP 6 — SHAPE:
Electron geometry → Trigonal bipyramidal.
Molecular shape → **Linear.**
Bond angle → 180°



GOLDEN NEET TRICK

For AX_2E_3: 2 bond pairs + 3 lone pairs = 5 electron domains.
Therefore → **sp^3d**. Shape → **Linear**

EXTRA EXAMPLES — SOLVE THEM IN THE SAME FORMAT:

1. I_3^- → AX_2E_3 → SN 5 → sp^3d → Linear.
2. XeF_2 → AX_2E_3 → SN 5 → sp^3d → Linear.
3. ClF_2^- → AX_2E_3 → SN 5 → sp^3d → Linear.
4. BrF_2^- → AX_2E_3 → SN 5 → sp^3d → Linear.
5. ICl_2^- → AX_2E_3 → SN 5 → sp^3d → Linear.
6. XeF_4 → AX_4E_2 → SN 6 → sp^3d^2 → Square planar.
7. SF_4 → AX_4E → SN 5 → sp^3d → See-saw.
8. ClF_3 → AX_3E_2 → SN 5 → sp^3d → T-shaped.
9. IF_5 → AX_5E → SN 6 → sp^3d^2 → Square pyramidal.
10. IF_7 → AX_7 → SN 7 → sp^3d^3 → Pentagonal bipyramidal.

"NEET SHORTCUT" BOX

AX_2E_3 → sp^3d → LINEAR	AX_4E_2 → sp^3d^2 → SQUARE PLANAR
AX_3E_2 → sp^3d → T-SHAPED	AX_5E → sp^3d^2 → SQUARE PYRAMIDAL
AX_4E → sp^3d → SEE-SAW	AX_7 → sp^3d^3 → PENTAGONAL BIPYRAMIDAL