

# Carbon & its Compounds

## Quick Study Guide

## HOW TO USE THIS GUIDE

HIGHLIGHTED TEXT SHOWS IMPORTANT POINTS

★ MARKS HIGH-FOCUS TOPICS

📝 INDICATES EXAM TIPS

⚠️ SHOWS COMMON ERRORS

💡 GIVES QUICK TIPS

## CARBON BONDING

Mnemonic: "CHAAR DOST"

**C** Carbon has 4 bonds  
**H** Hold electrons tight  
**A** Atoms share equally  
**A** Arrange tetrahedrally  
**R** Remember 4 valency

### Remember As:

- Like having 4 best friends
- Each bond = 1 friend
- Single bond = handshake
- Double bond = tight hug
- Triple bond = group hug

**D** Double bond possible  
**O** Octet complete  
**S** Single bonds common  
**T** Triple bond in some

### Common Errors:

- Wrong electron counting
- Missing hydrogen atoms
- Incorrect bond angles
- Forgetting lone pairs

## NAMING COMPOUNDS (IUPAC)

Mnemonic: "MUMMY KA RULE"

**M** Molecular formula first  
**U** Understand chain length  
**M** Main chain longest  
**M** Mark substitutes  
**Y** Yad karo numbers

**R** Root name (number of C)  
**U** Unsaturation check  
**L** Longest chain rule  
**E** End with 'e' or 'ane'

**K** Kahan hai group  
**A** Arrange alphabetically

### Chain Names:

1. Meth- (C<sub>1</sub>) = "Metro"
2. Eth- (C<sub>2</sub>) = "Ek do"
3. Prop- (C<sub>3</sub>) = "Papa"
4. But- (C<sub>4</sub>) = "Baby"
5. Pent- (C<sub>5</sub>) = "Paanch"
6. Hex- (C<sub>6</sub>) = "Hockey"

## HOMOLOGOUS SERIES

Mnemonic: "SAME PINCH"

**S** Similar properties  
**A** Add CH<sub>2</sub> each time  
**M** Making series  
**E** Each differs by 14 mass

**P** Properties similar  
**I** Increase by CH<sub>2</sub>  
**N** Next member formula  
**C** Chemical similarity  
**H** Hydrogen difference

### Series Examples:

1. Alkanes (-ane): C<sub>n</sub>H<sub>2n+2</sub>
2. Alkenes (-ene): C<sub>n</sub>H<sub>2n</sub>
3. Alkynes (-yne): C<sub>n</sub>H<sub>2n-2</sub>
4. Alcohols (-ol): C<sub>n</sub>H<sub>2n+1</sub>OH
5. Acids (-oic): C<sub>n</sub>H<sub>2n+1</sub>COOH

## IMPORTANT REACTIONS

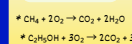
Mnemonic: "PARTY SCENE"

**P** Preparation reactions  
**A** Addition reactions  
**R** Replacement happens  
**T** Temperature effect  
**Y** Yield products

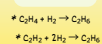
**S** Substitution type  
**C** Combustion complete  
**E** Elimination occurs  
**N** Neutralization  
**E** Esterification

### Must Learn Reactions:

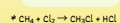
#### Combustion



#### Addition:



#### Substitution:



## FUNCTIONAL GROUPS

Mnemonic: "FAMILY GROUP"

**F** Formula check  
**A** Alcohol (-OH)  
**M** Make table  
**I** Identify group  
**L** List examples  
**Y** Yad karo all

**G** Group properties  
**R** Reactions dekho  
**O** -OH in alcohol  
**U** Understand each  
**P** Priority order

### Main Groups:

1. -OH (Alcohol): Daaru
2. -COOH (Acid): Nimbu
3. -CHO (Aldehyde): Formaldehyde
4. -C=O (Ketone): Acetone (nail polish)

## PROPERTIES & TESTS

Mnemonic: "TEST KARO"

**T** Test with Na  
**E** Effect on litmus  
**S** Soap formation  
**T** Turn to ester

**K** Keep heating  
**A** Add reagents  
**R** Record bubbles  
**O** Observe changes

### Important Tests:

1. Alcohol + Na → H<sub>2</sub> gas
2. Acid + Litmus → Red
3. Soap + Hard water → Scum
4. Acid + Alcohol → Ester + H<sub>2</sub>O



## DAILY LIFE COMPOUNDS

Mnemonic: "GHAR PE HAI"

G Gas in kitchen ( $\text{CH}_4$ )  
H Hand sanitizer ( $\text{C}_2\text{H}_5\text{OH}$ )  
A Acetic acid (vinegar)  
R Rubbing alcohol

P Perfume (esters)  
E Ethanol uses  
H Household acids  
A Acetone (remover)  
I Industrial use

### Examples:

1. Cooking gas ( $\text{CH}_4$ )
2. Vinegar ( $\text{CH}_3\text{COOH}$ )
3. Alcohol ( $\text{C}_2\text{H}_5\text{OH}$ )
4. Citric acid (in fruits)

## QUICK REVISION CHECKLIST

### Before Exam:

- ✓ Bonding concepts
- ✓ IUPAC naming rules
- ✓ Functional groups
- ✓ Important reactions
- ✓ Tests for compounds
- ✓ Daily life examples

### Scoring Tips:

1. Draw structures clearly
2. Show all bonds
3. Write balanced equations
4. Give proper examples
5. Mention observations

100%

### HIGH FOCUS AREAS

1. Carbon bonding (5 marks)
2. Reactions (5 marks)
3. IUPAC naming (4 marks)
4. Functional groups (4 marks)
5. Properties & tests (4 marks)

