

Copper-SA  
 First - ma  
 Third - GA  
 Fourth - PA  
 Fifth + Sixth - SA

Sympathetics

NI  
 SA  
 DHA  
 RE  
 GA  
 ma  
 PA  
 DHA  
 NI  
 SA  
 RE

• = above  
 middle C  
 below  
 below  
 middle C

Shudh - naturals (capital)  
 Komal - Flats  
 tivra (tiv-ruh) - M  
 Sargam: Sol-Fa  
 Aroh: ascending scale (7↑)  
 Avroh: descending scale (7↓)  
 Jati: 7 notes up and down  
 Thath: Parent scale

Bilaval	S R G m P D N ṡ
Yaman	S R G M P D N ṡ
Khamaj	S R G m P D n ṡ
Kafi	S R g m P D n ṡ
Bhairavi	S r g m P d n ṡ
Todi	S r g M P d N ṡ
Purvi	S r G M P d N ṡ
Bhairav	S r G m P d N ṡ
Marwa	S r G M P D N ṡ
Asavari	S R g m P d n ṡ

Tehi: a phrase repeated 3 times  
 chalan (walking): longer characteristic phrases

Gauges And String Type

1st - No. 3 Steel ( <del>tem</del> Stainless)			
2nd - No. 5 or 6 Tempered Brass or Co			
[3rd - No. 7]	↓	↓	↓
4th - No. 11	↓	↓	↓
5th - No. 1 Steel (Stainless or Plat			
6th - No. 0	↓	↓	↓
7th - No. 00	↓	↓	↓
Sympathetics - No. 00	↓	↓	↓

refer to di. no.  
d combinations

2000  
2000

up stroke |  
down stroke -

ex. S R G  
| - |

Chitari - <

exercises:

1. Scale with DA (S →  $\dot{S}$ ; M →  $\dot{G}$ )

2. DAK

3. DARA (S R G)  
| - |

4. | - |, | - |, | - | - 3+3+2

5. | - |, | - | - 3+2+3

6. | - |, | - | - 2+3+3

Dr : fast DA-RA  $\overset{SS}{\Lambda}$

1.  $\overset{+}{|} \overset{2}{\Lambda \Lambda \Lambda} | \overset{0}{\Lambda} | \overset{3}{\Lambda} | \dots |$

Da Divi Divi Divi, Da Divi Da Ra, Da Ra Divi Divi, Da-r Da-r Da

$\overset{+}{|} \overset{2}{S \ RR \ GG \ RR} | \overset{0}{S \ RR \ G \ R} | \overset{3}{S \ R \ GG \ RR} | \overset{3}{S- \ S- \ R- \ G}$

2.

$\overset{+}{|} \overset{2}{\Lambda \Lambda} | \overset{0}{\dots} | \overset{3}{\Lambda} | \dots |$

Divi Divi Da-r Da, -r Da Divi Divi, Da-r Da-r Divi, Da-r Da-r Da

$\overset{+}{|} \overset{2}{S \ S \ RR \ G- \ G-} | \overset{0}{R- \ RS \ RR \ GG} | \overset{3}{R- \ RS \ S \ RR} | \overset{3}{G- \ GR \ R \ S}$

+ : 1<sup>st</sup> beat - SAM

2 : 5<sup>th</sup> beat (2<sup>nd</sup> Tali)

0 : 9<sup>th</sup> beat KHALI (empty)

3 : 13<sup>th</sup> beat (3<sup>rd</sup> Tali)

Teental (rhythm) : cycle of 16 beats

Tali : first beat of a division

Ha Jhala  
<III  
<II<II<III

Krintan  
SNRSNS  
1

Meend  
 $\widehat{MP} < \widehat{PM} < \widehat{PD} < \widehat{DP}$   
 $\widehat{MPD} < \widehat{DPM}$   
 $\widehat{MPDN} < \widehat{NDPM}$   
 $\widehat{MPDNS} < \widehat{SNDPM}$   
 $\widehat{PD} \widehat{PDN} \widehat{NPD}$   
12 123 123

RSH  
1  
67

~  
NNRPS  
NNRPS

SARGAM Yaman - Kalyan

\* sthainv  
 $\dot{1}$  |  $\dot{2}$  |  $\dot{0}$  |  $\dot{3}$   
 | N N P S | N D M G | M G R - | G M N D

\*  
 $\dot{1}$  |  $\dot{2}$  |  $\dot{0}$  |  $\dot{3}$   
 | M - P M | G R G M | P M G R | G M G R

\*  
 $\dot{1}$  |  $\dot{2}$  |  $\dot{0}$  |  $\dot{3}$   
 | S N D N | R D N D | P - D N | R D N R

\*  
 $\dot{1}$  |  $\dot{2}$  |  $\overset{0}{\text{Antara}}$  |  $\dot{3}$   
 | G R G R | P - R - | G M D N | R - G -

\*  
 $\dot{1}$  |  $\dot{2}$  |  $\dot{0}$  |  $\dot{3}$   
 | R - P - | N N M - | D N R G

\*  
 $\dot{1}$  |  $\dot{2}$  |  $\dot{0}$  |  $\dot{3}$   
 | R - P - | R - N N | M - D N | R G R S

\*  
 $\dot{1}$  |  $\dot{2}$  |  $\dot{0}$   
 | N D P M | G R S P | M G D P

\*  
 $\dot{3}$   
 | M N D P

Antara - upper octave  
 Sthainv - lower and middle octave

Hindi Symbols

सा SA

रे RE

ग GA

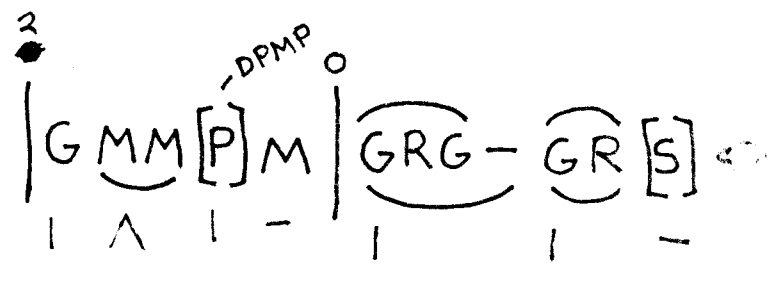
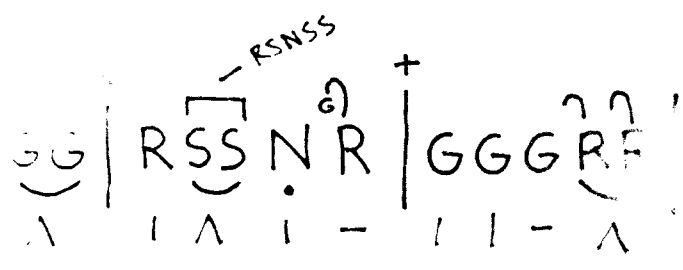
म MA

प PA

ध DHA

नी NI

GAT



Vadi - G

Sam Vadi - N

14V skips Sa and Pa on the aroh

PBS

Manjha (lower tetra chord)

GG | R SNRS N D | NDN <sup>N</sup>D [P] MM

<sup>2</sup> | DNN R GMP | GRG <sup>G</sup>R [S] ∅

Antara (upper Tetra chord)

<sup>P</sup>M[P] | M GG M <sup>N</sup>D | N SS SNRS | N RR G GMP | ~~XXXXXXXXXX~~

<sup>0</sup> | GRG <sup>G</sup>R S SNRS | N DD N <sup>R</sup>S | <sup>+</sup> ND [P] P |

<sup>2</sup> | M GG R GMP | GRG GR [S] ∅

or <sup>SN-RSNS</sup>

1. (SS) SS S S | N SS N [S] | ND N S

2. (NR) NR RR RR | ND NN RR | RS N RS

3. (GA) G GG G G | RGR <sup>RSN</sup> N RG | RG G [S]

4. (MA) M MM M M | <sup>G</sup>R MM ~~MG~~ | <sup>R</sup>G <sup>G</sup>R [S]

5. (PA) P PP P P | <sup>M</sup>G MM PP | M <sup>G</sup>R [S]

6. (DN) D DD DD | <sup>R</sup>DN D | <sup>N</sup>D R [S]

7. (Ni) | NNNN | DPM NN <sup>N</sup>D P | DPM R [S]

# Tans

from ninth matra (khali)

1. NRGM PDND PMGR

3. PMGM PDND PMGR

2. GMPD NSND PMGR

4. NRGR SNDP MGRS

from Sam

1. <sup>↑</sup> | NRGR GMPD NDPM GRS- | <sup>2</sup> NRGR GMPD NDPM GRNR

0 | GMPD NDPM GRS-

2. NRGR GMGM PMDN R-GR | SNDP MGRS GRSN DPMG

o DPMG RSGR SNDP MGRS

3. MDNR GMPM GRGM PDNR | <sup>2</sup>GRSN GMPM GRSN DPMG

o RGRN -RN- RN-R

4. NRGR SNDP MDNR GRS- | <sup>2</sup>NRGM PMGR GRS- | <sup>o</sup>NRGM PMGR  
GMPD NDP- | <sup>o</sup>MDNR GRSN SRGM PMG-  
NRGR SNDP MDND PMGR SNS- ] (3)

continued →

# YAMAN - DRUT GAT

$\begin{array}{c} + \\ | \\ G \quad \underline{-G} \quad G \quad R \quad | \quad G \quad \underline{MM} \quad P \quad D \quad | \\ 0 \quad 1 \quad - \quad 1 \quad - \quad 1 \quad \vee \quad 1 \quad - \end{array}$

$\begin{array}{c} 0 \\ | \\ \overline{D} P \quad M \quad \underline{GG} \quad \underline{RR} \quad | \quad G \quad \underline{-G} \quad \overline{RSN} \quad \underline{-N} \quad R \quad | \quad \emptyset \quad (2) \\ 1 \quad - \quad \vee \quad \vee \quad 1 \quad - \quad 1 \quad - \quad 1 \end{array}$

Manjha

$\begin{array}{c} + \\ | \\ \underline{GG} \quad \underline{RR} \quad G \quad \underline{-GR} \quad | \quad \underline{-R} \quad \underline{S-} \quad \underline{NN} \quad \underline{RR} \quad | \quad \underline{S-} \quad \overline{SND} \quad \underline{-D} \quad \underline{NN} \\ 3 \quad \vee \quad \vee \quad 1 \quad - \quad 1 \quad - \quad 1 \quad \vee \quad \vee \quad 1 \quad - \quad 1 \quad - \quad 1 \quad \vee \quad \vee \end{array}$

$\begin{array}{c} 3 \\ | \\ \underline{D} \quad \underline{-D} \quad \overline{DPM} \quad \underline{-M} \quad P \\ 1 \quad - \quad 1 \quad - \quad 1 \end{array}$

$$\begin{array}{c}
 \begin{array}{c}
 \overset{+}{|} \begin{array}{c} M \quad \underbrace{DD} \quad N \quad R \\ | \quad \checkmark \quad | \quad - \end{array} \begin{array}{c} \overset{2}{|} \begin{array}{c} G \quad \underbrace{MM} \quad P \quad D \\ | \quad \checkmark \quad | \quad - \end{array} \begin{array}{c} \overset{0}{|} \begin{array}{c} \overbrace{PDP} \quad \dot{M} \quad \underbrace{GG} \quad \underbrace{RR} \\ | \quad - \quad \checkmark \quad \checkmark \end{array}
 \end{array} \\
 \begin{array}{c}
 \overset{3}{|} \begin{array}{c} G \quad \underbrace{-G} \quad \overbrace{RSN} \quad \underbrace{-N} \quad R \\ | \quad \cdot \quad | \quad | \quad \cdot \quad - \quad | \end{array}
 \end{array}
 \end{array}$$

Antara

$$\begin{array}{c}
 \begin{array}{c}
 \overset{+}{|} \begin{array}{c} \underbrace{PP} \quad \underbrace{MM} \quad \overbrace{DP} \quad \underbrace{PM} \\ \checkmark \quad \checkmark \quad | \cdot \quad - | \end{array} \begin{array}{c} \overset{2}{|} \begin{array}{c} \underbrace{-M} \quad \underbrace{G-} \quad \underbrace{MM} \quad \underbrace{DD} \\ \cdot \quad - \quad | \cdot \quad \checkmark \quad \checkmark \end{array} \begin{array}{c} \overset{0}{|} \begin{array}{c} \underbrace{N-} \quad \overbrace{N^{DP}M} \quad \underbrace{-M} \quad \underbrace{DD} \\ | \cdot \quad - | \quad \cdot \quad - \quad \checkmark \end{array}
 \end{array} \\
 \begin{array}{c}
 \overset{3}{|} \begin{array}{c} \underbrace{NRS-} \\ | \quad - \quad | \end{array} \begin{array}{c} \overset{+}{|} \begin{array}{c} \underbrace{GG} \quad \underbrace{RR} \quad G \quad [S] \\ \checkmark \quad \checkmark \quad | \quad | \end{array} \begin{array}{c} \overset{2}{|} \begin{array}{c} \overbrace{N} \quad N \quad [P] \quad \overbrace{M} \quad \overset{0}{|} \begin{array}{c} \underbrace{P} \\ | \end{array}
 \end{array}
 \end{array} \\
 \begin{array}{c}
 \overset{0}{|} \begin{array}{c} M \quad \underbrace{R} \\ | \quad | \end{array} \begin{array}{c} \overset{3}{|} \begin{array}{c} \underbrace{-GG} \quad \underbrace{R-} \quad \overbrace{RSN} \quad R \quad - \\ \cdot \quad \checkmark \quad | \quad | \quad \cdot \quad - \end{array}
 \end{array}
 \end{array}$$

5.  $\left[ \begin{array}{c} + \\ \text{SRGR} \quad \text{SN,SR} \quad \text{GRSN}, \quad \text{SRGR} \end{array} \right] \left[ \begin{array}{c} 2 \\ \text{SNDP} \quad \text{MDP-} \quad \text{GMPM} \quad \text{GRSN} \end{array} \right]$   
 $\left[ \begin{array}{c} 0 \\ \text{PMGR} \quad \text{GMPD} \quad \text{NDPM} \quad \text{GRS-} \end{array} \right]$   
 $\left[ \begin{array}{c} \text{NNNR} \quad \text{RRGG} \quad \text{GMMM} \quad \text{PDND} \quad \text{PMGR} \\ \text{1-11} \quad \text{-11-} \quad \text{11-1} \quad \text{1-1-} \quad \text{1-1-} \end{array} \right] (3)$

6.  $\left[ \begin{array}{c} + \\ \text{NRGR} \quad \text{SNDP} \quad \text{MDNR} \quad \text{GRS-} \end{array} \right] \left[ \begin{array}{c} 2 \\ \text{NRGR} \quad \text{SNDP} \quad \text{MDND} \quad \text{PMGM} \end{array} \right]$   
 $\left[ \begin{array}{c} 0 \\ \text{PMGR} \quad \text{NRGR} \quad \text{S-} \left[ \begin{array}{c} \text{NR} \quad \text{NRRG} \quad \text{GMGM} \quad \text{MDMD} \quad \text{PMGR} \quad \text{S---} \end{array} \right] \end{array} \right] (3)$

7.  $\left[ \begin{array}{c} + \\ \text{NRGM} \quad \text{PMGR} \quad \text{NRGM} \quad \text{PMGR} \end{array} \right] \left[ \begin{array}{c} 2 \\ \text{NRGM} \quad \text{PMGR} \quad \text{SNDN} \quad \text{R---} \end{array} \right] \left[ \begin{array}{c} 0 \\ \text{GMPD} \end{array} \right]$   
 $\left[ \begin{array}{c} \text{NDPM} \quad \text{GMPD} \quad \text{NDPM} \quad \left[ \begin{array}{c} \text{GMPD} \quad \text{NDPM} \quad \text{GMPD} \quad \text{N---} \end{array} \right] \end{array} \right]$   
 $\left[ \begin{array}{c} \text{S-GR} \quad \text{SNDP} \quad \text{MGRS} \quad \text{NRS-} \end{array} \right] (3)$

# Yaman Drut Tans (From Sam)

1.  $\overset{+}{|} \underline{NR} \underline{GM} \underline{PM} \underline{GM} \overset{2}{|} \underline{PD} \underline{ND} \underline{PM} \underline{GR} \overset{0}{|} \underline{PM} \underline{GR} \underline{ND} \underline{PM}$   
 $\overset{3}{|} \underline{GR} \underline{NR} \underline{GR} \underline{NR}$

2.  $\overset{+}{|} \underline{NR} \underline{GM} \underline{PM} \underline{GM} \overset{2}{|} \underline{PD} \underline{ND} \underline{PD} \underline{NR} \overset{0}{|} \underline{GR} \underline{SN} \underline{PM} \underline{MG} \overset{3}{|} \underline{RS} \underline{NR} \underline{GR} \underline{NR}$

3.  $\overset{+2}{|} \underline{GR} \underline{SN} \underline{PM} \underline{GR} \overset{2}{|} \underline{ND} \underline{PM} \underline{GR} \underline{NR} \overset{0}{|} \underline{ND} \underline{PM} \underline{GR} \underline{NR}$

4.  $\overset{+}{|} \underline{GR} \underline{SN} \underline{SR} \underline{GM} \overset{2}{|} \underline{PM} \underline{GR} \underline{GM} \underline{PD} \overset{0}{|} \underline{ND} \underline{PM} \underline{PD} \underline{NS} \overset{3}{|} \underline{GR} \underline{SN} \underline{RS} \underline{ND}$   
 $\overset{+}{|} \underline{MD} \underline{PM} \underline{GR} \underline{NR} \overset{2}{|} \underline{G} - \underline{ND} \underline{PM} \overset{0}{|} \underline{GR} \underline{NR} \underline{G} - \overset{3}{|} \underline{ND} \underline{PM} \underline{GR} \underline{NR}$

5.  $\overset{+}{|} \underline{-D} \underline{NR} \underline{GM} \underline{DN} \overset{2}{|} \underline{-G} \underline{RN} \underline{-M} \underline{RN} \overset{0}{|} \underline{-R} \underline{G} \underline{-PM} \underline{GR} \overset{3}{|} \underline{S} \underline{-N} \underline{-R} \underline{-GR}$

# Yaman Gat with Dha Sam

<sup>0</sup>  
P | RR S - ~~4~~ | <sup>3</sup>  
D | N R - GRG -

<sup>+</sup>  
| D P - - | <sup>2</sup>  
M - G

# Nuclear Development

NRG

- GRNRG
  - GMGRNRG
  - GMPMGRNRG
  - GMDPMGRNRG
- G

Double Note

GMDNNDPMGRNRG

Descending

Gamat

NDNRS

Yaman Pakar:

PRS

NMGRPRS

P very strong

NRGM (P) -tingre

conversation:

play on the right and  
left of nuclea



$$\begin{array}{c}
 + \\
 \left| \begin{array}{c} \overbrace{RR} \\ \underbrace{\quad} \\ \vdots \\ \overbrace{SS} \\ \underbrace{\quad} \\ \vdots \\ R \\ \overbrace{RS} \\ \underbrace{\quad} \\ \vdots \\ \overbrace{N} \\ \underbrace{\quad} \\ \vdots \end{array} \right| \begin{array}{c} \overbrace{R} \\ \underbrace{\quad} \\ \vdots \\ \overbrace{G} \\ \underbrace{\quad} \\ \vdots \\ - \\ \overbrace{RSN} \\ \underbrace{\quad} \\ \vdots \\ - \\ \overbrace{RG} \\ \underbrace{\quad} \\ \vdots \\ \overbrace{RSN} \\ \underbrace{\quad} \\ \vdots \\ - \\ \overbrace{R} \\ \underbrace{\quad} \\ \vdots \\ G \end{array} \right| \begin{array}{c} \overbrace{RSN} \\ \underbrace{\quad} \\ \vdots \\ - \\ \overbrace{R} \\ \underbrace{\quad} \\ \vdots \\ G \end{array} \right| G
 \end{array}$$

$$3. \begin{array}{c}
 + \\
 \left| \begin{array}{c} \overbrace{N} \\ \underbrace{\quad} \\ \vdots \\ \overbrace{SS} \\ \underbrace{\quad} \\ \vdots \\ N \\ \overbrace{RS} \\ \underbrace{\quad} \\ \vdots \\ \overbrace{N} \\ \underbrace{\quad} \\ \vdots \\ N \\ \overbrace{S} \\ \underbrace{\quad} \\ \vdots \\ N \\ \overbrace{SS} \\ \underbrace{\quad} \\ \vdots \\ N \\ \overbrace{RSN} \\ \underbrace{\quad} \\ \vdots \\ N \\ \overbrace{S} \\ \underbrace{\quad} \\ \vdots \\ N \\ \overbrace{DD} \\ \underbrace{\quad} \\ \vdots \\ N \\ \overbrace{R} \\ \underbrace{\quad} \\ \vdots \\ - \end{array} \right|
 \end{array}$$

$$\begin{array}{c}
 + \\
 \left| \begin{array}{c} \overbrace{G} \\ \underbrace{\quad} \\ \vdots \\ \overbrace{MM} \\ \underbrace{\quad} \\ \vdots \\ G \\ \overbrace{DP} \\ \underbrace{\quad} \\ \vdots \\ \overbrace{M} \\ \underbrace{\quad} \\ \vdots \\ M \\ \overbrace{P} \\ \underbrace{\quad} \\ \vdots \\ G \\ \overbrace{MM} \\ \underbrace{\quad} \\ \vdots \\ G \\ \overbrace{DPM} \\ \underbrace{\quad} \\ \vdots \\ M \\ \overbrace{D} \\ \underbrace{\quad} \\ \vdots \\ M \\ \overbrace{GG} \\ \underbrace{\quad} \\ \vdots \\ M \\ \overbrace{D} \\ \underbrace{\quad} \\ \vdots \\ - \end{array} \right|
 \end{array}$$

$$\begin{array}{c}
 + \\
 \left| \begin{array}{c} \overbrace{[S]} \\ \underbrace{\quad} \\ \vdots \\ - \\ \overbrace{S} \\ \underbrace{\quad} \\ \vdots \\ N \\ \overbrace{[P]} \\ \underbrace{\quad} \\ \vdots \\ - \\ \overbrace{P} \\ \underbrace{\quad} \\ \vdots \\ M \\ \overbrace{RR} \\ \underbrace{\quad} \\ \vdots \\ \overbrace{GG} \\ \underbrace{\quad} \\ \vdots \\ \overbrace{R} \\ \underbrace{\quad} \\ \vdots \\ - \\ \overbrace{S} \\ \underbrace{\quad} \\ \vdots \\ S \\ \overbrace{GG} \\ \underbrace{\quad} \\ \vdots \\ R \\ \overbrace{RSN} \\ \underbrace{\quad} \\ \vdots \\ - \\ \overbrace{N} \\ \underbrace{\quad} \\ \vdots \\ R \\ \underbrace{\quad} \\ \vdots \\ - \end{array} \right|
 \end{array}$$



# Jhala

$$1. \left| \begin{array}{cccc} N & - & - & - \\ N & - & - & - \\ N & - & - & - \\ N & - & - & - \end{array} \right| \begin{array}{cccc} D & \ggg & N & \ggg \\ S & \ggg & S & \ggg \end{array} \left| \quad (2x) \right.$$

$$2. \left| \begin{array}{cccc} R & - & - & - \\ R & - & - & - \\ R & - & - & - \\ R & - & - & - \end{array} \right| \begin{array}{cccc} D & \ggg & N & \ggg \\ S & \ggg & S & \ggg \end{array} \left| \quad (2x) \right.$$

$$3. \left| \begin{array}{cccc} M & - & - & - \\ D & - & - & - \\ N & - & - & - \\ S & - & - & - \end{array} \right| \begin{array}{cccc} D & \ggg & N & \ggg \\ S & \ggg & S & \ggg \end{array} \left| \quad (2x) \right.$$

$$4. \left| \begin{array}{cccc} N & \ggg & S & \ggg \\ R & \ggg & S & \ggg \end{array} \right| \quad (2x)$$

$$5. \left| \begin{array}{cccc} N & \ggg & G & \ggg \\ R & \ggg & G & \ggg \end{array} \right| \begin{array}{cccc} N & \ggg & R & \ggg \\ S & \ggg & S & \ggg \end{array} \left| \quad (2x) \right.$$

$$6. \left| \begin{array}{cccc} N & \ggg & R & \ggg \\ G & \ggg & R & \ggg \\ G & \ggg & G & \ggg \end{array} \right| \begin{array}{cccc} N & \ggg & R & \ggg \\ S & \ggg & S & \ggg \end{array} \left| \quad (2x) \right.$$

$$7. \left| \begin{array}{cccc} N & \ggg & R & \ggg \\ G & \ggg & R & \ggg \\ N & \ggg & R & \ggg \\ G & \ggg & G & \ggg \\ G & \ggg & G & \ggg \\ G & \ggg & G & \ggg \end{array} \right| \begin{array}{cccc} N & \ggg & R & \ggg \\ S & \ggg & S & \ggg \end{array} \left| \quad (2x) \right.$$

8. | N >> R >> G >> R >> G > M > P >>> P >>> P >>> P >>>

9. | M >> N >> D >> N >> M > D > P >>> P >>> P >>> P >>>

10. | G > M > D > N > N >>> N >>> | M >>> D >>> P >>> P >>>

11. | M --- D --- N --- N --- | S >>> S >>> S >>> S >>>  
| -vv -vv -vv -vv |

12. | N > R > G > R > G >>> G >>> | N >>> R >>> S >>> S >>> | (x2)

| N > R > G > M > G >>> G >>> | N >>> R >>> S >>> S >>> | (x3)

| N >>> D >>> P >>> M >>> G > R > | N >>> R >>> G >>> R >>> N > R > | (x3)

| RG RG NR NR | DN DN MD MD | GM GM RG RG | NR NR S- S- |

| NNN RRR GGG RRR NNRR | 3x (G)

(Mishra) Jhinjhoti - vilambit Gat

$GG \left| \overset{3}{G} \overline{M} \underline{GR} \underline{G-RS} \underline{D \cdot \cdot \cdot PD} \right|^\dagger S S S \underline{P \cdot \cdot \cdot SR}$

$\left| \overline{G^{RS}} \underline{SRMP} \overline{D^{Pm}} \underline{RmPD} \right| \underline{n \cdot \cdot \cdot D} \underline{MR} G \emptyset$

Skips Ga and Ni on ascent

Komal ni slightly sharp

Pakar :  $SR\tilde{N} -- DNPDS$

# Jinjinghoti Vilambit Ians

1.  $\left| \overset{+}{\text{SS}} \ \overset{+}{\text{SR}} \ \overset{+}{\text{nn}} \ \overset{+}{\text{n-}} \ \overset{2}{\text{nn}} \ \overset{2}{\text{ns}} \ \overset{2}{\text{n-nDP}} \ \overset{0}{\text{D}} \ \overset{0}{\text{SRMP}} \ \overset{0}{\text{DnDP}} \ \overset{0}{\text{RGRn}} \right| \otimes$

2.  $\left| \overset{+}{\text{s}} \ \overset{+}{\text{s}} \ \overset{+}{\text{s}} \ \overset{+}{\text{nD}} \ \overset{2}{\text{P}} \ \overset{2}{\text{PD}} \ \overset{2}{\text{mG}} \ \overset{0}{\text{R}} \ \overset{0}{\text{mm}} \ \overset{0}{\text{P}} \ \overset{0}{\text{nD}} \ \overset{3}{\text{P}} \ \overset{3}{\text{PD}} \ \overset{3}{\text{mG}} \right|$

$\left| \overset{+}{\text{R}} \ \overset{+}{\text{mm}} \ \overset{+}{\text{P}} \ \overset{+}{\text{P}} \ \overset{2}{\text{PD}} \ \overset{2}{\text{SR}} \ \overset{2}{\text{Gm}} \ \overset{0}{\text{G}} \ \overset{0}{\text{G-mR}} \ \overset{0}{\text{-GSR}} \ \overset{0}{\text{s}} \right| \otimes$

3.  $\left| \overset{+}{\text{S}} \ \overset{+}{\text{S}} \ \overset{+}{\text{S}} \ \overset{+}{\text{Rm}} \ \overset{2}{\text{P}} \ \overset{2}{\text{PP}} \ \overset{2}{\text{PP}} \ \overset{0}{\text{RmPD}} \ \overset{0}{\text{n--P}} \ \overset{0}{\text{D--m}} \ \overset{3}{\text{P}} \ \overset{3}{\text{RmPD}} \ \overset{3}{\text{n--P}} \ \overset{3}{\text{D--m}} \ \overset{3}{\text{P}} \right|$

$\left| \overset{+}{\text{PDSR}} \ \overset{+}{\text{G--S}} \ \overset{+}{\text{R--n}} \ \overset{+}{\text{S--P}} \ \overset{2}{\text{n--P}} \ \overset{2}{\text{D-mP}} \ \overset{2}{\text{-Gm-}} \ \overset{2}{\text{RG-S}} \ \overset{2}{\text{P--P}} \right|$

$\overset{0}{\left| \text{R-Dn} \ \text{-PD-} \ \text{SR-G} \ \text{mG} \right|} \otimes$

$$4. \begin{array}{l} + \\ \left| \begin{array}{c} S \ S \ S \ R_m \\ P \ PP \ P \ P \\ D \ DD \ PDm- \ m \\ n^{\uparrow} D \ DD \ DPm- \ m \end{array} \right| \\ + \\ \left| \begin{array}{c} mPD \ nD \ P \ P \\ m^{\uparrow} R \ mm \ P \ P \\ \cancel{m^{\uparrow} R \ mm \ P \ P} \\ \overset{0}{P}S \ nn \ D \ P \end{array} \right| \\ 3 \\ \left| \begin{array}{c} PD \ \dot{S}R \ \dot{G} \ \dot{S} \\ Sn \ DP \ m \ G \\ S \ Rm \ G \ S \\ SR \ nD \ S \end{array} \right| \end{array}$$

$$5. \begin{array}{l} + \\ \left| \begin{array}{c} \dots \\ \overset{2,3}{n-nn} \ nn \ \overset{R}{S}n-P \ D \\ \overset{0,+}{D} - \overset{P}{m} \overset{P}{m} \ GR \ GS-S \ S \end{array} \right| \\ 2,3 \\ \left| \begin{array}{c} SR-G \ SR \ \overset{S}{n} \ \overset{S}{n} \ \overset{S}{n} \\ SR-G \ SR \ \overset{S}{n} \ \overset{S}{n} \ D- \end{array} \right| \\ 2,3 \\ \left| \begin{array}{c} \overset{D}{D} - P \ mG \ RP-R \ GR \\ \overset{0,+}{SG-R} \ Sn \ nR-S \ nD \end{array} \right| \\ 2 \\ \left| \begin{array}{c} SR \ mP \ Dn-P \ D-mP \\ -Gm- \ RG-S \ RS \end{array} \right| \end{array}$$

$$6. \left| \underbrace{SRG-}_{-0} \quad \underbrace{SRG-}_{-0} \quad \underbrace{SRPm}_{-0} \quad \underbrace{G-}_{-0} \right| \left| \underbrace{DD-D}_{-0} \quad \underbrace{DD-D}_{-0} \quad \underbrace{PDPm}_{-0} \right| - \left| \right.$$

$$\left| \underbrace{PP-P}_{-0} \quad \underbrace{PP-P}_{-0} \quad \underbrace{mPmG}_{-0} \right| - \left| \left| \underbrace{D}_{-0} \right| \underbrace{Sn}_{-0} \quad \underbrace{D-}_{-0} \quad \underbrace{6mR}_{-0} \quad \underbrace{G}_{-0} \right|$$

$$\left| \underbrace{SnD-}_{0,+} \quad \underbrace{SnD-}_{0,+} \quad \underbrace{SnD-}_{0,+} \quad \underbrace{R}_{0,+} \right| \left| \underbrace{SnD-}_{0,+} \quad \underbrace{SnD-}_{0,+} \quad \underbrace{SnD-}_{0,+} \quad \underbrace{S}_{0,+} \right| \left| \right.$$

$$\left| \underbrace{DS}_{0} \quad \underbrace{Rm}_{0} \quad \underbrace{PDM-}_{0} \right| - \left| \underbrace{nm}_{0} \quad \underbrace{Rn}_{0} \quad \underbrace{DG}_{0} \right| - \left| \underbrace{mR}_{0,+} \quad \underbrace{nD}_{0,+} \quad \underbrace{PR}_{0,+} \right| - \left| \right.$$

$$\left| \underbrace{SRG-}_{2} \quad \underbrace{-s}_{2} \quad \underbrace{SR}_{2} \quad \underbrace{mP}_{2} \right| \left| \underbrace{D\dot{s}}_{2} \quad \underbrace{R\dot{g}}_{2} \quad \underbrace{\dot{s}n-D}_{2} \quad \underbrace{nD-P}_{2} \right| \left| \underbrace{DP-m}_{3} \quad \underbrace{GRG-}_{3} \quad \underbrace{-GRG}_{3} \right| - \left| \right.$$

$$\left| \underbrace{G \dot{s}nD,n}_{+} \quad \underbrace{DP,DP}_{+} \quad \underbrace{m,GRG}_{+} \right| \left| \underbrace{s,snD}_{+} \quad \underbrace{DnP-}_{+} \quad \underbrace{SnD,n}_{+} \quad \underbrace{DP,DP}_{+} \right|$$

$$\left| \underbrace{m,GRG}_{0} \quad \underbrace{s,snD}_{0} \quad \underbrace{DnP-}_{0} \right| \emptyset$$

$$\left| \underbrace{SS-S}_{+,0} \quad \underbrace{SS-S}_{+,0} \quad \underbrace{ND-S}_{+,0} \right| - \left| \underbrace{nn-n}_{2,3} \quad \underbrace{nn-n}_{2,3} \quad \underbrace{SPP-}_{2,3} \right| - \left| \right.$$

$$\begin{array}{l}
\begin{array}{c} 1 \\ 3 \\ + \end{array} \left| \begin{array}{c} \underline{D\dot{n}-\dot{n}} \quad \underline{\dot{n}S-S} \quad \underline{SR-G} \quad \overline{SRS} \end{array} \right| \begin{array}{c} 2,0 \\ +,0 \end{array} \left[ \begin{array}{c} \underline{m-\overline{m^P m}} \quad \underline{GR} \quad \underline{-G-G} \quad \overline{RGRS} \end{array} \right] \\
\begin{array}{c} 3 \\ + \end{array} \left| \begin{array}{c} \underline{-R-R} \quad \overline{SRS\dot{n}} \quad \underline{-\dot{n}-\dot{n}} \quad \overline{\dot{n}D\dot{P}\dot{D}} \end{array} \right| \begin{array}{c} +,0 \\ \end{array} \left[ \begin{array}{c} \underline{\dot{m}-PD} \quad \dot{n} \quad \underline{\dot{P}\dot{D}-\dot{n}} \quad \underline{\dot{P}\dot{D}\dot{m}-} \end{array} \right] \\
\begin{array}{c} 3 \\ + \end{array} \left| \begin{array}{c} \underline{mPPP} \quad \underline{PDDD} \quad \underline{D\dot{n}SR} \quad \overline{\dot{n}D\dot{P}\dot{D}} \end{array} \right| \begin{array}{c} 2,0 \\ + \end{array} \left[ \begin{array}{c} \underline{\dot{D}\dot{D}-Pm} \quad \underline{GRSn} \quad \underline{\dot{D}\dot{P}\dot{D}\dot{n}} \quad - \end{array} \right] \\
\begin{array}{c} 3 \\ 2 \end{array} \left| \begin{array}{c} \underline{\dot{n}\dot{n}-m} \quad \underline{R\dot{n}SR} \quad \underline{G-} \quad \overline{SRS} \end{array} \right| \begin{array}{c} + \\ 0 \end{array} \left[ \begin{array}{c} \underline{\dot{D}m-G} \quad \underline{mR-m} \quad \underline{\dot{n}m} \quad \underline{D-} \end{array} \right] \\
\begin{array}{c} 3,2 \\ 3 \end{array} \left| \begin{array}{c} \underline{\dot{P}\dot{D}S\dot{n}} \quad \underline{\dot{D}-} \quad \underline{\dot{P}\dot{D}\dot{n}S} \quad \underline{\dot{D}} \end{array} \right| \begin{array}{c} +,0 \\ 0 \end{array} \left[ \begin{array}{c} \underline{\dot{P}\dot{D}S\dot{n}} \quad \underline{\dot{D}-} \quad \underline{\dot{P}\dot{D}\dot{n}S} \quad \underline{\dot{D}} \end{array} \right] \\
\begin{array}{c} 3 \\ 3 \end{array} \left| \begin{array}{c} \underline{mGR-} \quad \underline{-R-R} \quad \underline{GRS-} \quad \underline{-S-S} \end{array} \right| \begin{array}{c} +,0 \\ +,2,0 \end{array} \left[ \begin{array}{c} \underline{RS\dot{n}-} \quad \underline{-\dot{n}-\dot{n}} \quad \underline{S\dot{n}D-} \quad \underline{-D-D} \end{array} \right] \\
\begin{array}{c} 3 \\ 3 \end{array} \left| \begin{array}{c} \underline{-mGR} \quad \underline{-GRS} \quad \underline{-RS\dot{n}} \quad \underline{-S\dot{n}D} \end{array} \right| \begin{array}{c} +,2,0 \\ + \end{array} \left[ \begin{array}{c} \underline{mGR,G} \quad \underline{RS,RS} \quad \underline{\dot{n},S\dot{n}D} \quad \underline{\dot{P}\dot{D}SR} \end{array} \right] \\
\begin{array}{c} 3 \\ 3 \end{array} \left| \begin{array}{c} \underline{SRm\dot{P}} \quad \underline{D\dot{S}\dot{R}\dot{G}} \quad \underline{\dot{S}\dot{n}DP} \quad \underline{mGRS} \end{array} \right| \begin{array}{c} + \end{array} \left[ \underline{SR-P} \quad \underline{mGRm} \quad \underline{GRm-} \quad \underline{G} \right] (x3)
\end{array}$$