PRECIS
MAP READING STD I & II
(ROMAN HINDI)

Prepared by
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164 Inf Bn TA

FOREWORD

1. At the outset, I wish to compliment Hav H Jeyaraman (AEC) on the excellent and painstaking effort taken by him in preparing a Map Reading Precis in Roman Hindi. I am sure that thil précis will go a long way in assisting pers of non-Hindi states to learn the nuances of Map Reading.

2. It is indeed a very onerous task and he has accomplished it successfully. The effort is also reflective his initiative, dedication and deserves commendation. I am sanguine that this effort will be useful to our Thambi tps.

Station : c/o 99 APO

Dtae : Oct 2011

(Govind Singh)
Col
Commanding Officer
164 inf Bn TA (NAGA)

ACKNOWLEDGEMENT

1. At present all available precis and book on Map Reading (MR) are gen in Hindi, thereby making comprehension of the subject difficult for non-Hindi speaking tps. This effort in Roman Hindi is therefore aimed at making the subject easy to comprehend and cover all topics as per the latest syllabus of MR Stds I, II and III as prescribed in SAO 1/S/2007/GS.

2. It is hoped that this precis will facilitate achievement of the intended aim. I also wish to place on record, the guidance given to me by LT Col Shekhar (2 IC) in making this effort possible.

Hav DK Mor

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MAP READING KA PARICHAY
(INTRODUCTION TO MAP READING)

1. **PRASTAVANA.** Aadhunik yug mein vigyan ki pragati ke sath-sath yuddh ke swaroop mein bhi kaafi parivarthan ho gaya hai. Rajnitik samjoton ke falswaroop yuddh ki seemayen desh ki seema ko par kar gaie hain. In aavasthaon mein sainik ko aise ilakon mein jana parta hai jahan ki bhogolik evam dharataliya banavat se ve anbhigya rahate hain. Saamrik dristi se zameeni banavat ka labh tabhi uthaya ja sakta hai, jab sainikon ko Map Reading mein achchhi prakar se kushalta hasil ho.

2. **MAP.** Kisi bhu-bhag ko jab kisi mapak, projection athva nishchit vidhi ki sahayata se kisi kagaj, kapre ya anya kisi madhyam ke upar darshaya jata hai to use Map kahate hain.

3. **MAPON KA SANSHIPT ITHIHAS.** Prachin kal mein uttari Canada ke Eskimo aur Arab ke marusthalon ki janjathi Bedouin ki khal aur ret ke upar kisi bhi bhu-bhag ka sahi khaka banane mein nipunata hasil thi. 600 BC Yunnan mein pahala map mitti ki pleton par banaya gaya tha. 500BC uttari Mesopotamia aur Babylon ki sabhyataon se hamein sarva pratham mapon ki jankari milthi hai. 12 BC Samrat August ke damad M Vipsanius Agrippa ne prashid Romen map taiyar kiya. San 1947 mein Venish sahar ke najdik Moreno ke ek Bhikshu Furra Mauro ne vishva ka ek map taiyar kiya jise madhyakalin Cartography ka shikhar bindu mana jata hai. San 1541 mein Mercator ne ek globe banaya aur San 1569 mein Europe ka ek bara map taiyar kiya. Todermal jo Akbar ke nao ratnon mein se ek the, unhone San 1571 mein kar basuli ke liye ek nayi pranali ki shuruath ki tatha khethi bari ka sahi dang se sarvekshan karke, pure samrajya ko 12 pranton mein vibhakt kiya aur vasuli ke map taiyar kiye. Shershah Suri ke shasan kal mein bhi aise hi mapon ka varnan milta hai. San 1767 mein East India Company ne Bharat mein apni prashasanik va vyaparik niyantran ko prabhavi banane ke liye 'Survey of India' ki sthapana ki. San 1785 mein Bharat ka pahala map taiyar kiya gaya aur San 1788 mein James Rainal dwara banaya gaya pahala map prakashit hua. Yahin se Bharat mein sarkar dwara map banane ki parampara ka shubharambh hua. December 1799 mein Col William Lambton ne pure Bharat ka GTS(Great trigonometrical Survey) karane ki yojana ka prastav rakha. 10 Apr 1802 mein GTS(Great trigonometrical Survey of India) ne Madras ke nikat sthit aadhar rekha (Base Line) se apna survey ka karya shuru kiya. San 1824 mein The Atlas of India shrainkhala ke tehat pure Bharat ke ¼"= 1 mile scale ke map banane ki yojana banay gaie. Iska pahala map 1827 mein England mein chhapa gaya. 1867 tak ye map England mein he chhapte the, tatpaschath ye map Bharat mein bhi chhape jane lage. 1847 se 1883 tak ¼" = 1 mile tatha isse bari scale ke map takniki roop se bahut pramanik nahi the. 1883 mein 1" = 1 mile tatha isse bari scale ke mapon ka standardization kiya gaya.

4. 1905 se Bharat mein aadhunik mapon ka nirman shuru hua aur nishchit yojana ke tahat pure dakshin Asia ko uchit akar va scale ki sheeton mein banta gaya. Isi samay 1"=1mile ki scale ke mapon ko Bharat mein Standard Maps ke roop mein apnaya jane laga. 1947 mein ½" = 1 mile ki scale ke mapon ka prakashan aanshik roop se bandh kiya gaya. 1956 mein Survey of India dwara metric paddhati ko apnaya gaya.1957 mein Hindi bhasha mein Bharat mein pahala Atlas prakashit hua.

5. **MAP READING KA ARTH.** Map Reading ka arth kewal map ko parna hi nahin hai, apitu sainik dristi se use bhalibhanti samajana aur prayog mein lana bhi hai. Ismein Grid Reference, duri ko mapna aur map koasal bhi shamil hain.

6. **MAPON KA VARGIKARAN**

Mapon ki vargikaran scale aur uddeshya ke adhar par kiya ja sakta hai:-

(a) **Scale ke addhar par mapon ka vargikaran.** Scale ke addhar par map teen prakar ke hote hain, jinhein Chhoti Scale, Madhyam Scale va Bari Scale ke Map kaha jata hai.Yeh sidhant sabhi deshon mein saman na hokar kewal parampara par nirbhar hota hai. Isliye bhinna-bhinna deshon mein Chhoti, Madhyam va Bari Scale ke mapon mein anupati antar hota hai.

(b) **Uddeshya ke addhar par mapon ka vargikaran.** Map banane ke kai uddeshya ho sakte hain. Ismein prasasanik karyawahi, Sainik karyawahi, Schoolon ki shiksha, Touriston ke liye, Yaatayat ke liye, vyapar ke liye va sarvajanik nirman ke liye suchnayen dena shamil hai. Uddeshya ke adhar par mukhaya map nimnalikhikt hain :-

(i) **Dharatal Sambandhi Map.** Yeh map survey department dwara banaye jate hain. Inmein dharatal ke sabhi sambhav prakratik angon ko alag-alag vidhion dwara darshaya jata hai. Inki visheshta yeh hai ki inmein zameen ki anavashyak detailon ko ekdam chhor diya jata hain. Samanyataya sena, Railway va Van vibhag in mapon ka istemal karte hain.

(ii) **Atlas Map.** Yeh bahut hi chhoti scale ke map hote hain tatha ek hi prast par puri pritvi, pura des ya pura rajya dikhaya jata hai. Yeh map adhiktar school mein Bhougolik shiksha dene ke liye prayog mein laye jate hain.

(iii) **Guide Map.** Inka mukhya uddeshya yatriyon va touriston ko unki dilchaspi ke sthan tak le jane wale raston ko dikhana hota hai. Ismein yatriyon ki suvidha ke liye Sarayon, Hotelon, Railway stationon, Bus standon aur Hawai addon aadi ko bhi darshaya jata hai.

(iv) **Relief Map.** Ye map triaayami (3 Dimentional) hote hain taki dharatal ka sahi-sahi gyan ho sake.

(v) **Road Map.** Parivahan, Vyapar, Dur jane wale logon ki suvidha ke liye sadakon ke map banaye jate hain. Inmein kewal sadaken hi dikhaie jati hain.

(vi) **Railway Map.** In mapon mein railway linon va railway stationon ki jankari di huie hoti hai.

7. **MAP READING KA UDDESHYA**

(a) Map reader ko is yogya banana ki vah Map se zameen par tatha zameen se map par prakritik va banawati nishanon ko Bhalibhanthi pahachan kar sake aur sahi marg ka chunav kar sake.

(b) Map ki suchnaon ko samjhkar bina zameen ko dekhe hi zameen ki tactical aur prashasanik sambhavanaon ki kalpana kar sake.

(c) Sainik gatividhiyon ke adesh-nirdesh evam unse sambandhit suchnaon ko sheeghrata se jaan sake.

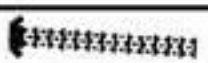
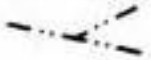
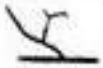
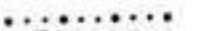
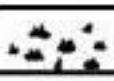
☆☆☆☆☆

ROODHI CHINH
(CONVENTIONAL SIGNS)

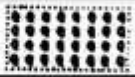
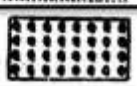
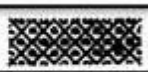
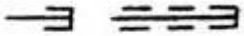
1. **PRASTAVANA.** Survey mapon ka uddeshya un par dashaye bhu-bhag ke sabhi prakritik aur banavati nishanon ko hu-ba-hu prakat karna hota hai. Lekin map sheet par itana sthan nahin hota ki bhu-bhag ke sabhi nishanon ko ankit karke un par unke naam likha diye jayen. Is karan map nirmataon ne sanshipt rekhachitron dwara prithvi ke sabhi nishanon ko darshane ka prayatn kiya gaya hai, jinhein Survey of India dwara swikar kiya gaya hai. Inhein chinhon ko conventional sign ka naam diya gaya hai.

2. **PARIBHASHA.** Survey of India dwara swikar kiye gaye un parampragat tatha nishchit chinhon ko Conventional Signs kahate hain. Jinke dwara zameen ke sabhi prakritik aur banavati nishanon ko Survey mapon aur anya sketchon par dikhaya jata hai.

Village Open		Pagoda	
Village Walled		Mosque	
Village in Ruins		Idgah	
Scattered buildings and huts permanent		Fort Surveyed	
Scattered buildings and huts Temporary Occupied		Fort Conventional	
Deserted site	×	Watch Tower	
Monument	●	Chhatri	
Factory chimney	● Chy	Kos Minar	
Cave Inhabited	◇	Battle field with name & year	Chilianwala X 1849
Piquet Or Post	◇	Burial ground	
Church		Graves	
Christian Memorial		Oil well	
Temple		Oil tank	
Gopurams		Mine soft	●
Tomb		Boundary pillar Surveyed	■
		Boundary pillar Unlocated	■

Rifle Range		Tank	
Klin		Quarry	
Aerodrome		Single line stream	
Landing strip		Stream Bank	
Helipad		Dry Nala	
Trijunction Piller		Water fall	
Well lined		Rapids	
Well unlined		Perennial canals	
Well Dry	 (Dry)	Non-Perennial canals	
Tube well or Pump House		Canal disused or under construction	
Hand Pump		Dam (Rock field)	
Spring		Telegraph line	 (Telegraph line)
Karez (in use)		Telephone line	 (Telephone line)
Karez (disused)		Electric Main power line with sub stn	
Pipe line (water)		Electric local distribution lines	
Pipe line (Oil)		Ropeway	
Pipe line (Gas)		Wire less Station	Wireless station
Swamp Or Marsh		Railway Broad gauge (double)	
Reeds		Railway Broad gauge (single)	
Lake Or Tank		Tram way	
Excavated tank (Perennial)		Level Crossing	

Road over Railway		District boundary	
Road under Railway		Village boundary	
Railway Tunnel		Reserved or protected forest	
Bridge carrying Railway		Tea, Coffee & Cardamom Estate	
Roads Metalled		Trees (Scattered)	
Roads Unmetalled		Trees (Surveyed)	
Cart track with bridge		Scattered scrub	
Pack Track with bridge, culvert		Grass- high with description of height & variety	Grass 3 meters high
Pack Track with pass & height	2035 / 2035	Cane-brake	
Foot-path with bridge		Pine & Fir Trees	
Road Tunnel		Palm Trees	
Pantoon bridge		Palmyra Trees	
Ferry or Ford	Ford (March to June) / Ferry (June to Mar)	Bamboo	
Roads in dry river-bed with steep river banks		Cactus	
Unmetalled road along tank bund		Plantain Trees	
Road or Railway Embankment	2r	Betelnut tree	Betelnut
Road or Railway cutting 2m to 3m deep	2r	Stony waste	Stony w
International boundary without pillar		Wooded area closed	
International boundary with pillars		Cultivated land with boundary	
State boundary (demarcated)		Camping ground along road	CG
State boundary (undemarcated)		Salt pan	Salt pan

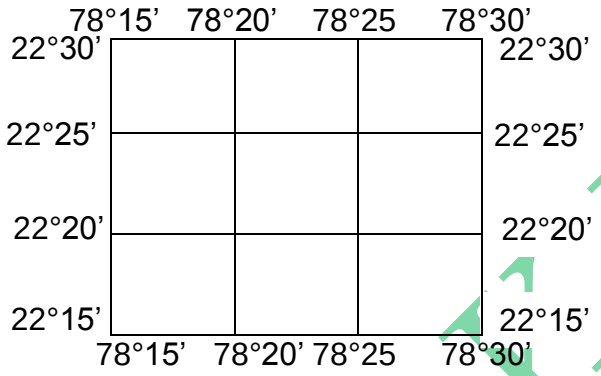
Orchard or garden	
Orchard or garden (enclosed)	
Vegetadle & Pineapple garden without boundary	
Rocky Knobs	
Gorge	
Light ship	
Light House	
Buoy (Lighted)	
Buoy (Unlighted)	
Anchorage	
Pier or Jetty Open, Frame work or piles	
Gurudwara	
Bridge with Pillars	
Bridge without Pillars	

★★★★★

(KALASAMBANDHI SHABD)

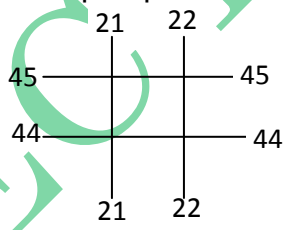
(TECHNICAL TERMS)

1. **GRATICULE.** Survey Mapon ke upar Akshansh aur Deshantar rekhaon ke bichhe us jaal ko Graticule kahate hain jo map ke ilaka ke ki seemayen banata hai.

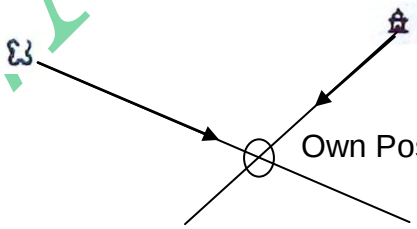


GRATICULE

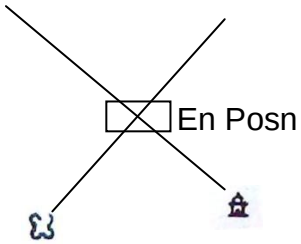
2. **GRID.** Survey Mapon par bengani rang se khienchi poorvi aur uttari rekhaon ke us jaal ko Grid kahate hain, jiski sahayata se Mapon par Reference diya jata hai.



3 **RE-SECTION.** Map par apni position nishchit karne ki us vidhi ko Re-section kahate hain jismein map ke upar kam se kam do jane hue anya sthanon se apni position ki oar line khinchi jati hai.



4. **INTER SECTION.** Map par shatru ke ya dur ke kisi anjane sthan ki position gyat karne ki us vidhi ko Inter section kahate hain, jismein map par kam se kam do jane hue sthanon se us sthan ki oar line khinchi jati hai.



5. **ORIENTATION.** Orientation ka vyavaharic arth plane table ko zameen ke uppar is prakar rakhana hota hai, jisse uske uppar rakhkar banaye jane wale sketch ka True North zameeni True North ki oar ishara kare.

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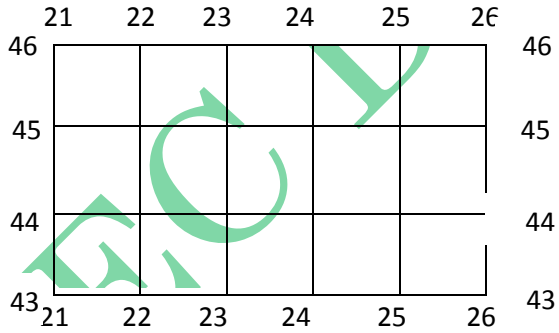
6. **ORIENTEERING.** Orienteering, Map aur Ground mein ekroopata sthapit karne wali vah practical vidhi hai jiske dwara Map Craft mein dilchaspi badhaie aur maharat hasil karaie ja sakti hai.

7. **DESHANTAR REKHAYEN (Longitude Lines).** Survey mapon par kale rang se khinchi gaie un poorvi rekhaon ko deshantar rekhayen kahate hain, jo map par true north ki position batati hai. Inhein true north rekhayen bhi kaha ja sakta hai.

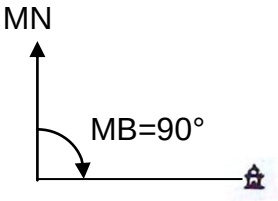
8. **AKSHANSH REKHAYEN (Latitude Lines).** Survey mapon par kale rang se khinchi gaie uttari rekhaon ko Akshansh rekhayen kahate hain.

9. **GRID LINES.** Survey mapon par bengani rang se khinchi gaie ve rekhayen Grid Rekhayen kahalati hai jo aapas mein samkon par katati hai. Uttar se Dakshin ki oar khinchi gaie Grid rekhayen Poorvi (Eastings) oar Poorav se Paschim ko kheinchi gaie grid rekhayen Uttari(Northings) Grid Rekhayen kahalati hai.



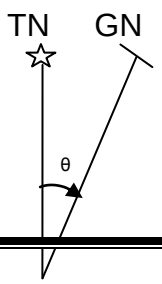
10. **BEARING.** Kisi north rekha par kisi dusare sthan se aaie huie rekha ke milne se jo konaatmak duri banti hai use Bearing kahate hain. Ye ghari ki suiyon ke rukh degriyan, minuton aur secondon mein napi jati hain.

11. **FORWARD BEARING.** Observer se Object tak ki bearing ko Forward Bearing kahate hain.



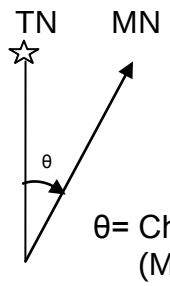
12. **BACK BEARING.** Object se Observer ki bearing ya Forward Bearing ki ulti bearing ko Back Bearing kahate hain isse nikalne ke liye yadi Forward Bearing 180° se jyada hai to 180° ghata dete hain aur yadi 180° se kam hai to 180° jor dete hain.

13. **ANGLE OF CONVERGENCE (AOC).** Kisi sthan par vastavik uttar se grid uttar ke beech ki konatmak duri ko Samavay Kon ya Angle of Convergence kahate hain. Yeh TN se liya jata hai tatha grid north, East ya West mein ho sakta hai.



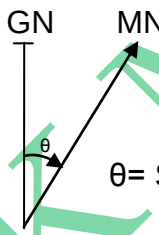
θ = Samavay kon (AOC)

14. **MAGNETIC VARIATION (MV).** Kisi sthan par vastavik uttar se Chumbakiya uttar ke beech ki konatmak duri ko Chumbakiya antar ya magnetic variation kahate hain. Yeh TN se liya jata hai yeh antar East ya West mein ho sakta hai.



θ= Chumbakiya antar (MV)

15. **LOCAL VARIATION (LV).** Kisi sthan par Grid North se Megnatic north ke beech ki konatmak duri ko sthaniya antar ya local variation kahate hain. Isse GN se liya jata hai.



θ= Sthaniya antar (LV)

16. **TRUE NORTH (TN) .** Dhruvatare se gyat hone wale north ko True North kahate hain. Kisi sthan se true north ki oar khinchi gaie rekha true north rekha kahalati hai. Survey mapon par ye rekhayen kale rang se khinchi jati hai.

17. **GRID NORTH (GN).** Survey Mapon par bengani rang se khinchi gaie , Poorvi rekhayen jis uttar ki oar ishara karti hain vah Grid North(GN) kahalata hai.

18. **MAGNETIC NORTH (MN).** Compass ki madad se gyat hone wale north Magnetic North(MN) kahalata hai. Survey Mapon par isko dikane wali koie rekha nahin hoti.

19. **LOCAL MAGNETIC ATTRACTION (LMA).** Kisi sthan par zameen ke andar Loha, Nickel, Cobalt ityadi hone ke karan compass ki suie theek uttar ke bajay kuchh degree dahine ya bayen hat jati hai. Yahi hatav LMA kahalata hai.

20. **INDIVIDUAL COMPASS ERROR (ICE).** Compass ke kisi nuks ke karan jab uski suie theek uttar ki bajay kuchh degree dahine ya bayen hat jati hai, to is hatav ko Individual Compass Error (ICE) kahate hain.

21. **RELIEF.** Zameen ki unchaie aur nichaie ko kisi model ya map par hubahu dikhane ko Relief kaha jata hai.

22. **CONTOUR.** Survey Mapon par bhure rang se kheinchi gaie ve rekhayen contour rekhayen kahalati hain jo samudra tal se nishchit unchaie wale bhu-bhagon par gujarti huie apni-apni unchaie ki rekhaon mein aa milti hain.

23. **FORM LINE.** Sketchon par nishchit unchaie ke bad contour rekhaon ke saman khinchi jane wali rekhayen Form lines kahalati hai.

24. **DATUM LEVEL.** Kisi map sketch mein dikhaye gaye zameeni ilake ki sabse neechi ki, samudra tal se unchaie ko Datum Level kahte hain.

25. **GRADIENT.** Bhinnon mein dikhaie gayi dhalaanen Gradient kahalati hain.

26. **TANGENT.** Degreeyon mein bataie gaie dhalaanen Tangent kahalati hain.

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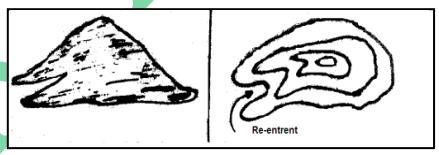
DHARATALIYA AAKRITIYAN

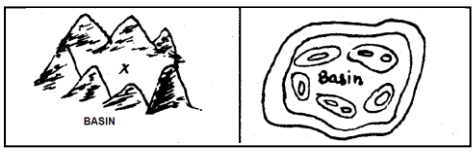
(TOPOGRAPHICAL FORMS)

1. **SPUR OR SALIENT.** Kisi parvat ki baaju ke saman alag nikali huie us shakha ko Spur kahate hain, jo akeli hi dhalti huie dur tak chali jati hai. Yadi kisi spur ka maidan se milta hua bhag choada aur steep ho to use Bluff kahate hain. Chhota spur shoulder kahalata hai. Spur ke contour **'U'** ya **'V'** ke shape mein hote hain.

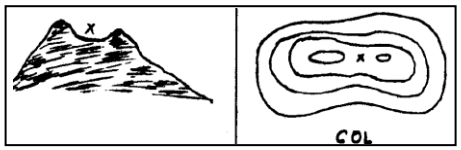
2. **RE-ENTRANT.** Do spuron ke beech ke dabe hue us dharatal ko Re-entrant kahate hain, jo pahar ki choti ki oar uncha hota chala jata hai. Ismein adhiktar nala paya jata hai. Contouron mein iski shape ulte' ∩ ya ' ∧ ke saman hoti hai.



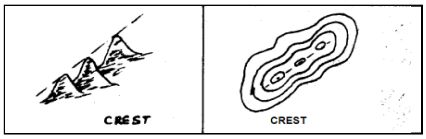
3. **BASIN.** Us samtal ya lagbhag samtal dharatal ko Basin kahate hain, jo lagbhag charo oar se parvat se ghira hota hai.



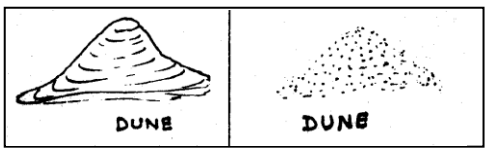
4. **COL ya SADDLE.** Pahari ke do nazdiki shikharon ke beech ki us dabi tatha samtal si unchaie ko Col ya Saddle kahate hain, jo dur se ghore ki kathi ke saman dikhaie deti hai. Yadi kisi unchi Saddle par se parvat ke aar-paar jane ka marg ban jata hai, to vah Saddle pass kahalata hai.



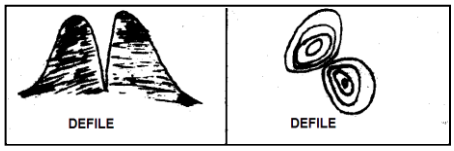
5. **CREST.** Lambi aur dur tak faili huie parvat shrankhlaon ke shikharon ko milane wali us kalpit rekha ko Crest kahate hain, jo nazar ki madad se banti hai. Yahan se parvat shrankhala ki dhalaan donon oar ko aarambh ho jati hai.



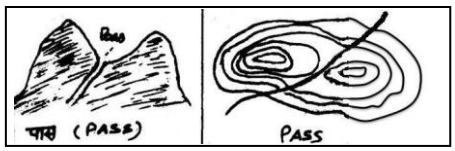
6. **DUNE.** Hawa ki madad se banane aur bigarne wale ret ke un tilon ya ridgeon ko Dune kahate hain, jo dur se pahariyon ke saman dikhaie dete hain. Unchaie kam hone ke karan prayah: ek contour rekha se hi bana diye jate hain.



7. **DEFILE.** Kisi chore marg ke us tang bhag ko Defile kahate hain, jisse paar hone ke liye, sena ki fileon ko chhoti formation mein badalte hain. Prakratik defile mein pahariyon ke tang raste ya pass ghane van, pahari ke katav, aadi aate hain.

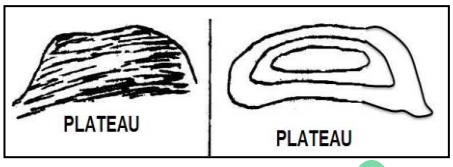


8. **PASS.** Kisi parvat shrankhla ka vah neecha aur tang marg ya sadak pass ya darra kahalata hai, jahan se hokar parvat ke dusari oar pahuncha jata hai. Yeh pass kahin-kahin Col ya Saddle par se aur kahin-kahin par do pahar ke beech

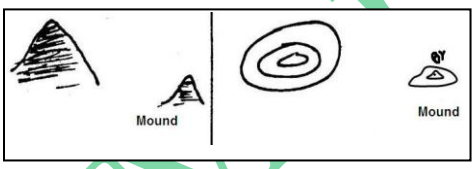


ke tang raste ya ek pahar ke prakratik katav ke sath-sath se hokar bante hain.

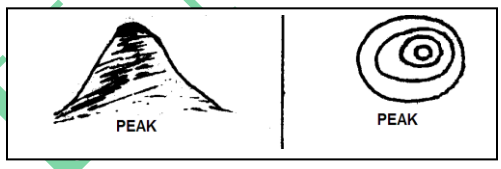
9. **PLATEAU.** Parvat ke uppar ke samtal ya lagbhag samtal dharatal ya uthe hue maidan ko Plateau ya Table Land kahate hain. Jab kisi pahar ke uppar kafi lambe choare bhag mein contour rekhayen na hon to samjho ki wahan Pathar ya Plateau hai.



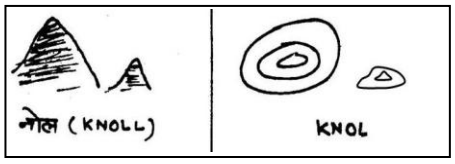
10. **MOUND.** Maidan mein yakayak ubhare hue mitti ya pattharon ke us tile ko Mound kahte hain, jahan se charon oar ka ilaka dekha ja sakta hai. Survey mapon mein iski unchaie relative height dwara dikhaie jati hai.



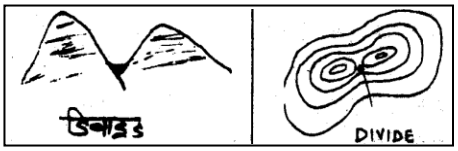
11. **PEAK.** Kisi parvat-shirankhala ke sabse unche shikhar ko Choti ya Peak kahate hain. Peak ki unchaie spot height ya trig height mein dikhaie jati hai.



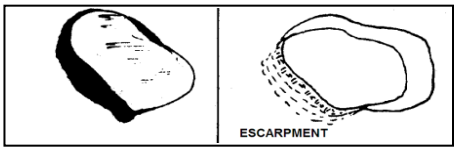
12. **Knoll.** Kisi parvat-shirankhala se ekdam dur hatkar ya kisi maidan ki akeli chhoti pahari ko Knoll kahate hain. Yadi iski unchaie jyada hogi to ise Hillock aur bahut kam hogi to Mound kahate hain. Iski contour rekhayen chhalle ke saman band hoti hai.



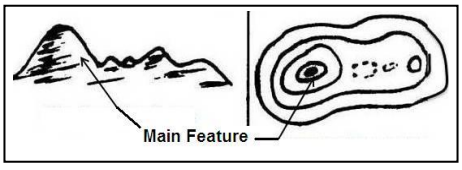
13. **Divide.** Lambi aur unchi parvat-shirankhala ki us unchi uthi peeth ko Divide kahate hain, jahan se pani do viparit dishaon mein bahane lagta hai.



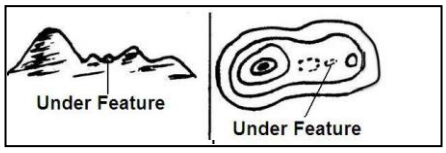
14. **Escarpment.** Pathar (Plateau) ya pahari ki khari dhalaan wale kinaron ka silsila Escarpment kahalata hai. Yeh cliffon ke silsile ke roop mein bhi ho sakta hai.



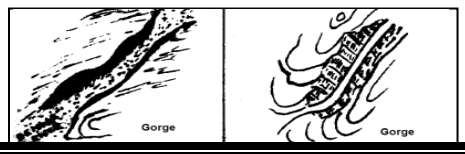
15. **Mein Feature.** Kisi ilake ke ve mashhur nishan jinse us ilake ko pahachana ja sakta hai.



16. **Under Feature.** Mukhya parvat se hatkar jo alag-alag shikhar ubhar aate hain ve Under Feature kahalate hain.

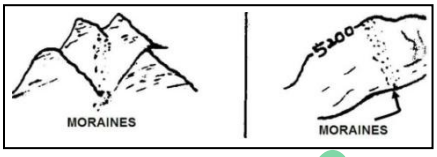


17. **Gorge.** Jab koie jal dhara kisi khari parvat chattan ko katkar usmein sankara aur gahara marg bana leti hai, to



uske unche aur khare kinare Gorge kahalate hain. Iski contour rekhayen bhi bahut paas-paas hoti hain.

18. **Moraines.** Glacier ke sath aaye hue kankad-pattharon ka dher Moraines kahalata hai.



19. **Fiord.** Vah barfilee ghati jo samudra se jakar milti hai.

20. **Foot Hill.** Unche paharon aur maidan ke beech ke ilake ko paad Pradesh ya Foot Hill kahate hain. Yadyapi yeh pahari ilake ke saman steep nahin hota, fir bhi maidan se uncha aur asamtal hota hai.

21. **Ridge.** Kisi unche pahar ki lambi, sukri aur lagbhag saman unchaie wali us shail-shirankhala ko Ridge kahte hain, jahan se donon oar ko dhalaan shuru ho jati hai.

22. **Causeway.** Nadi va nale ka vah sthan jahan se pulrahit sadak gujarti hai.

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13

SCALE
(MAPAK)

1. **ARTH.** Prithvi aur unki detailon ke beech ke pare fasalon ko map par jis anupat se kam kar ke dikhaya jata hai wahi anupat scale kahalata hai.

2. **SCALEON KE PRAKAR.** Scale teen prakar ki hoti hai :-

(a) **Chhoti Scale.** Jin mapon par zameen ki detailon ke beech pare fasale sadharan se chhoti lambai mein dikhaye jate hain unhein chhoti scale ki map kahalate hain. Bharat mein 1/500000 aur isse chhoti scaleon ke map chhoti scale ke map kahalate hain.

(b) **Madhyam Scale.** Zameen ki detailon ke beech ke pare fasale jin mapon par sadharan lambai mein dikhaye jate hain unhein madhyam scale ke map kahalate hain. Bharat mein 1/500000 se lekar 1/100000 tak ki scaleon ke map Madhyam Scaleon mein aate hain.

(c) **Bari Scale.** Zameen ki detailon ke beech ke pare fasale jin mapon par sadharan se bari lambai mein dikhaye jate hain unhein bari scale ke map kahate hain. Bharat mein 1/100000 aur isse bari scaleon ke map ve mane jate hain jinmein inchon ko ek mile ke barabar dikhaya jata hai. Jaise 4” = 1 Mile.

3. **SCALEON KO PRAKAT KARNE KI VIDHIYAN**

(a) **Shabdon dwara.** Is vidhi mein scale ko shabdon se prakat karte hain. Jaise:-

(i) 1 CM = 1 Km. (ii) 1 Inch= 1 Mile. (iii) 2 CM = 1 Km.

(b) **RF Dwara(Representative Fraction).** Ismein dono fasalon ko bhinna roop mein likha jata hai. Jaise :-

(i) 1/100000. (ii) 1/63360. (iii) 1/50000.

(c) **Rekha Vibhajan Dwara.** Scaleon ko rekhaon(Scale Line) ke dwara bhi prakat kiya jata hai. Suvidha ke anusar is ke lambai 10 se 15 cm beech ho sakta hai. Iske bad rekha ko pahale bare-bare- bhagon mein (Primary Division) aur uske bad bare bhag ko chote- chote bhagon mein (Secondary divition) bant liya jata hai.

4. **SCALE LINEON KE PRAKAR.** Scale lineon ke prakar ham do tarikon se gyat kar sakte hain :-

(a) **Maap ke adhar par.** (i) Std Distance.(ii) Kadam ki scale line. (iii) Samay ki scale line.

(b) **Bant ke adhar par.** (i) Single Scale line. (ii) Double Scale line. (iii) Diagonal scale.

DISHAYEN TATHA UTTAR BINDU

(DIRECTIONS AND NORTH POINTS)

1. **PRASTAVANA.** Yadi koi jawan anjane sthan par akela rah jaye ya rasta bhul jaye to vah dishaon ki sahayata se apne gantavya sthan tak pahunch sakta hai. Sainikon ka sambandh to sadev hi anjane ilakon se hota hai. Larai ka maidan bhi jawan ke liye aamtaor par nai hote hai. Maidan se bhataka jawan apne camp mein sahi salamat tabhi lot sakta hai, jab use disha gyan ho. Map reading ki shiksha mein Map koasal ki shuruat dishaon ke gyan se hoti hai. Map set karna tatha apni position gyat karna aadi ke liye dishaon ka gyan hona aavashyak hai.

2. **AAVASYAKTA.**

(a) Map set karne ke liye.
(b) Own position gyat karne ke liye.
(c) Map to Ground aur Ground to Map ki karyawahi ke liye.
(d) Ek sthan se dusare sthan tak jane ke liye.
(e) Training, Schemon, Patrolling, Recce va Exercise ke liye.
(f) Night March va Route March ke liye.
(g) Vayu sena va jalsena ki gatividhiyon ke liye.
(h) Survey ke liye.
(j) Field Sketch ke liye.
(k) Yatayat aavagaman ke liye.

3. **DISHAON KE PRAKAR VA UNKI BEARING**

(a) **Mukhya Dishayen (Cardinal points)**

(i)	North	-	0°/360°	(iii)	East	-	90°
(ii)	South	-	180°	(iv)	West	-	270°

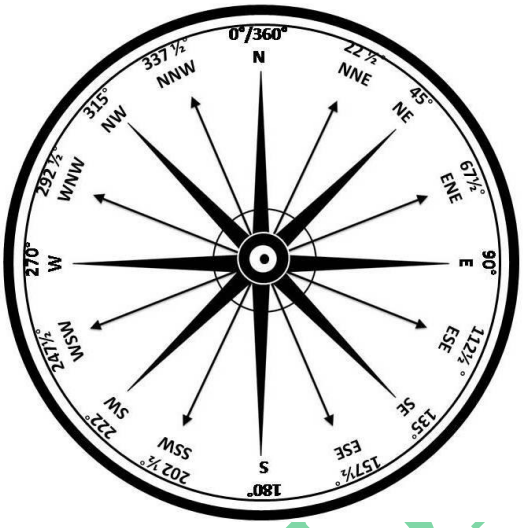
(b) **Madhyavarthi Disha Bindu (Intermediate Cardinal Points)**

(i)	North East (NE)	- 45°		(ii)	South East (SE)	-	135°
(iii)	South West (SW)	- 225°		(iv)	North West (NW)	-	315°

(c) **Anya Dishayen (Other Directions)**

(i)	North North East	(NNE)	-	22 1/2°
(ii)	East North East	(ENE)	-	67 1/2°
(iii)	East South East	(ESE)	-	112 1/2°
(iv)	South South East	(SSE)	-	157 1/2°
(v)	South South West	(SSW)	-	202 1/2°
(vi)	West South West	(WSW)	-	247 1/2°

(vii)	West North West	(WNW)	-	292 1/2°
(viii)	North North West	(NNW)	-	337 1/2°



4. UTTAR DISHA KA MAHTAV

(a) Uttar disha gyat hone par shesh dishaon ka pata chal jata hai.
(b) Degriyan ki ginti uttar disha se hi shuru hoti hai.
(c) Uttar disha gyat karne ke liye kai achchhe sadhan hain.
(d) Prithvi apni dhuri par uttar se dakshin disha ke rookh mein khari rahti hai.
(e) Chumbakiya parvat shila ka dakshini kinara uttari golardh mein sthith hai.
(f) Sabhi sketchon mein uttar disha ko tir ke nishan se prakat karte hain.
(g) Sabhi prakar ke mapon mein uttar disha ko upar shirsak ki oar dikhaya jata hai.
(h) Compass ki sui uttar disha ki oar ishara karti hai.
(j) Map set karne ke liye uttar disha ki aavashyakata parti hai.

5. UTTAR KE PRAKAR

(a) **True North.** Dhurv tare ki sahayata se gyat hone wala uttar Vastavik Uttar(True North) kahalata hai. Survey mapon par kale rang se khinchi deshantar rekhaen vastavik uttar ki oar ishara karti hain. Yeh rekhaen sthaie hoti hain.

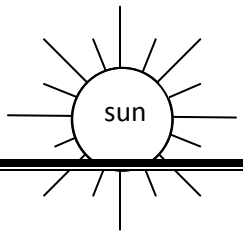
(b) **Grid North.** Survey mapon par bhure ya baingani rang ki khari rekhaen (Easting lines) jis uttar ki taraf ishara karti hain use Manchitriya Uttar (Grid North) kahate hain. Yeh rekhaen sthaie hoti hain.

(c) **Magnetic North.** Jis uttar ki oar compass ki sui sanket karti hai use Chumbakiya uttar (Magnetic North) kahate hain.

6. DISHAYEN MALUM KARNE KI VIDHIYAN

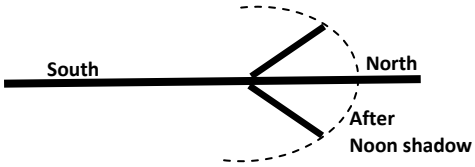
(a) **Din ke Samay**

(i) Surya dwara.

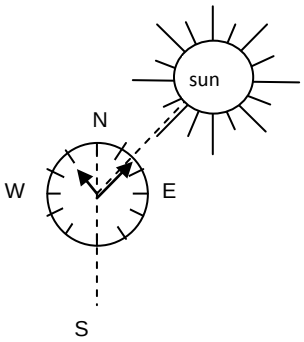


Before
Noon shadow

(ii) Chhaya ki sahayata se.



(iii) Ghari dwara.



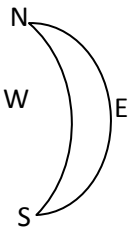
(iv) Dhoop Ghari.
(v) Vayu Disha Pradarshak.
(vi) Map Dwara.
(vii) Map va zameeni details dwara.

(b) **Raat ke Samay**

(i) Dhruv Tara se.

(ii) Dakshini Khatola se.

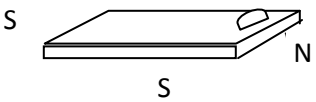
(iii) Chandrama ki kalaon dwara.



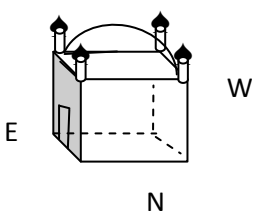
WANING CRESCENT

(c) **Din va Raat ke Samay**

(i) Kabristan se.



(ii) Masjid se.



(iii) Compass se.

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SERVICE PRISMATIC COMPASS

1. **PRASTAVANA.** Prachin kal se hi logon ne dishaon ko janne ke liye bhinn-bhinn sadhanon ki khoj aarambh kar di thi, pahale prakratik sadhanon ke dwara dishaon ka gyan prapt karte the. Surya aur dhruv tare ki sahayata se to log adikal se hi dishaon ka gyan karte chale arahe hain. Kintu chumbak ke avishkar ne dishaon ke gyan ko bara saral aur sahi bana diya hai. Vishva ke sabse pahale disha suchak yantra ka pata hamein mahabharat kal se milta hai, Arjun ke rath ke uper aisa yantra tha jisse charon dishaon ka sahi-sahi gyan ho jata tha. Compass vartman yug ki bahut bari den hai.

2. **PARIBHASHA.** Compass dibiya ke aakar ka ek aisa yantra hai, jiske dwara ham sahi-sahi dishaon ki degriyan, aur bearingon ko malum kar sakte hain.

3. **COMPASS KE PRAKAR.** Compass itana upyogi yantra hai ki yeh bajaron mein bhinn-bhinn roopon mein dekhne ko milta hai. Upyog ke aadhar par iske do prakar hain - dishaen batane wale va zameeni degriyan padhane wale.

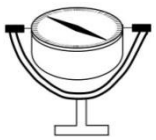
(a) **Dishayen batane wale Compass**

(i) Pocket ya Watch Compass.
(Disha batane ke kam aata hai)

(ii) Traff Compass.
(Plane table sketch mein disha batane ke liye)

(iii) Mariners Compass.

(iv) Zayaro Compass.



(b) **Zameeni Degriyan Padhane Wale Compass**

Yeh compass asainik aur sainik do bhinn-bhinn uddeshyon ko pura karne ke liye banaye jate hain. Asainik uddeshya wale compass ko Prismatic Compass kehate hain, jo teen lambi tangon ke aadhar par khara kiya jata hai jiski madad se zameeni nishanon ke bearing gyat karke Prismatic Compass Sketch banaye jate hain.

5. **SAINIK UDDESHYA WALE COMPASS.** Yeh do prakar ke hote hain:-

(a) Service Prismatic Compass Dry Type Mark -VIII (DRY).

(b) Service Prismatic Compass Liquid Mark - III- A.

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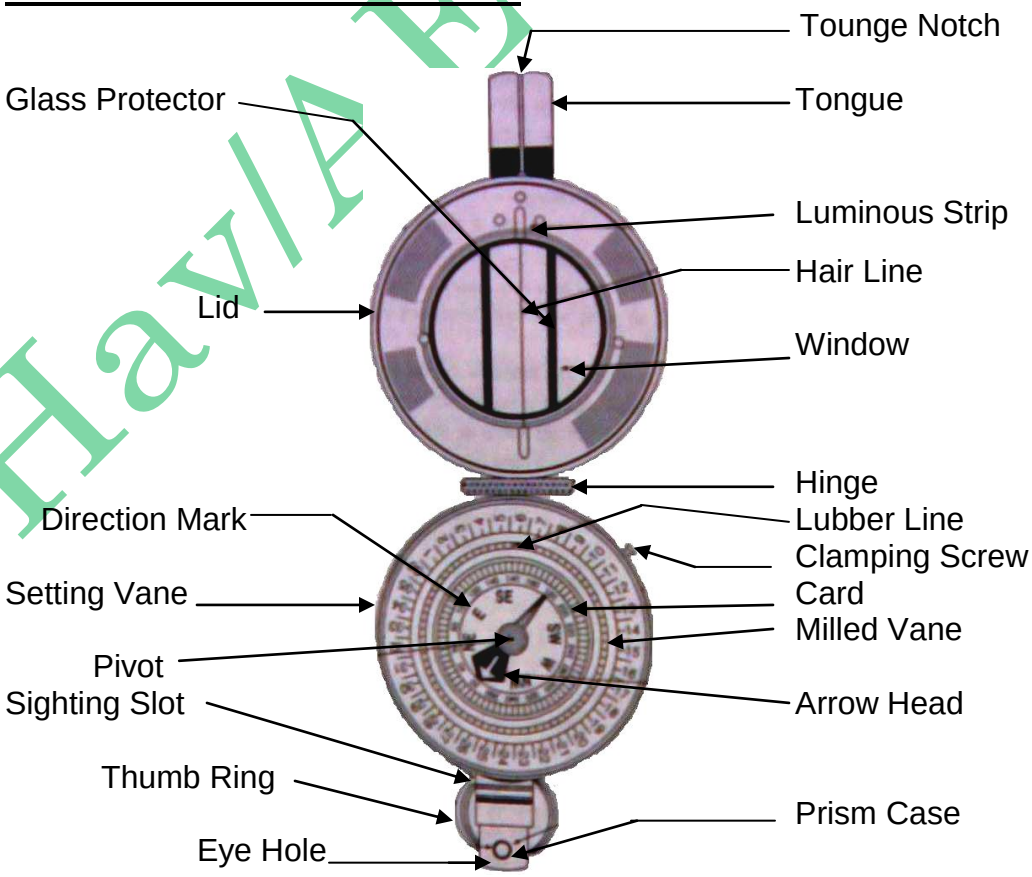
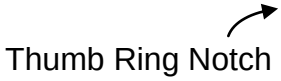
Service Prismatic Compass Dry Type Mark -VIII (DRY)

DRY

Service Prismatic Compass Liquid Mark - III- A

6. **COMPASS KE PURJON KE NAAM**

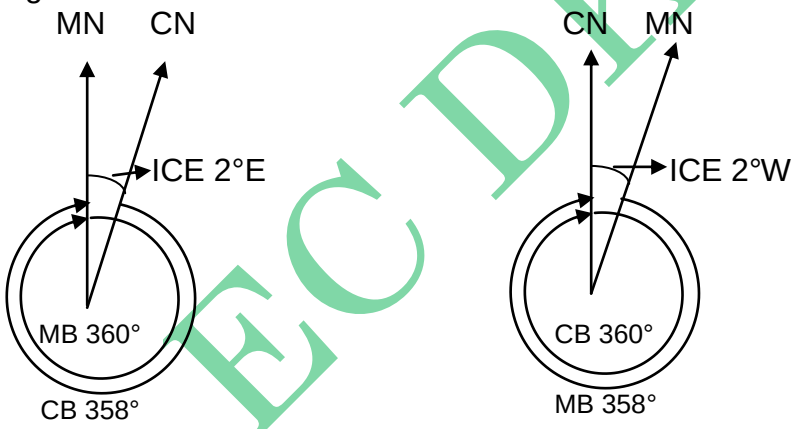




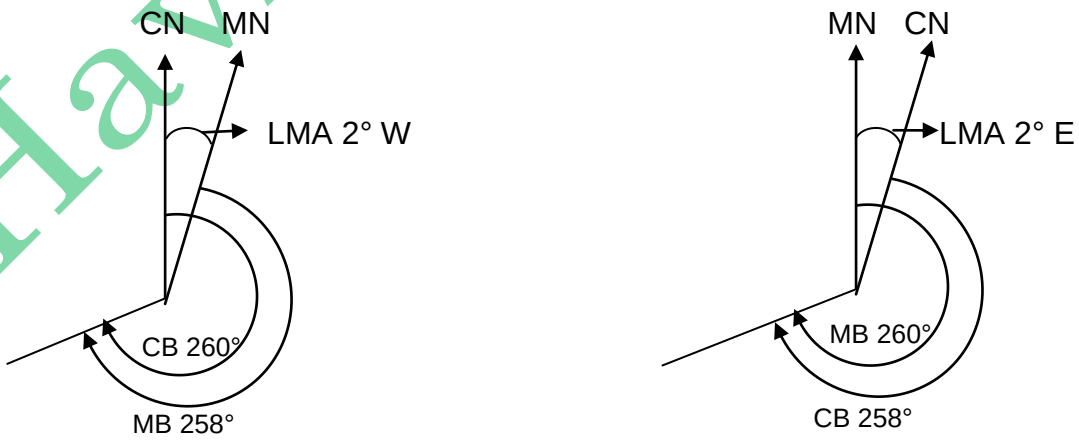
7. **COMPASS KE LAABH**

(a) Map set karne ke liye.
(b) Dishaen gyat karne ke liye.
(c) Zameeni nishanon ke bearing va back bearing padhane ke liye.
(d) Night March karne ke liye.
(e) Din mein march karne ke liye.
(f) Kisi degree par zameeni nishan chunne ke liye.
(g) Sketchon par north rekhaen banane ke liye.
(h) Map ki degriyan gyat karne ke liye.
(j) Kisi sthan ka chumbakiya aakarshan malum karne aadi ke kam aata hai.

8. **INDIVIDUAL COMPASS ERROR (ICE).** Yadi compass ki truti 2° east hai to iska arth yeh hai ki vah compass 0° ya 360° padhane ke bajay 358° padhega, atah us sthan ka us compass se sahi bearing uske dikhaye bearing se hamesha hi 2° jyada hogi. Yadi truti 2° West ho to karyavahi ulti hogi.



9. **LOCAL MAGNETIC ATTRACTION (LMA).** Bahari dabav ya aakarshan padane par compass ki sui theek magnetic north ki oar sanketh nahin karti, yadi ham prayog karke dekhen to pata chalta hai ki compass ki sui chumbak hone ke karan loha, nickel aur cobalt ki oar ghum jati hai.



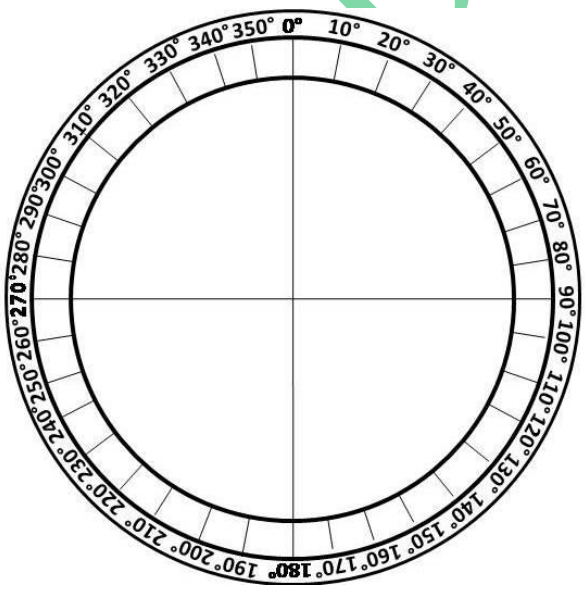
SERVICE PROTRACTOR

1. **PRASTAVANA.** Jab hum yeh kahate hain ki bearing vah konatmak duri hai, jo object se kisi north rekha aur observer tak jane wali rekha ke beech banti hai to hamein ek aise yantra ki bhi avashyakta parti hai, jo is konatmak duri ko naap sake. Prithvi par is konatmak duri ko compass ke dwara naapte hain. Mapon ke upar do nishanon ke beech ki konatmak duri Service Protractor ke dwara napi jati hai.

2. **PARIBHASHA.** Service Protractor Dhatu, Hathi ke daant, Plastic, Lakri athva gatte par bana hua aisa paimana hota hai, jiski sahayata se mapon par do nishanon ke beech ke bearing padhe jate hain aur nishchit bearingon ki rekhayen khinchi jati hain.

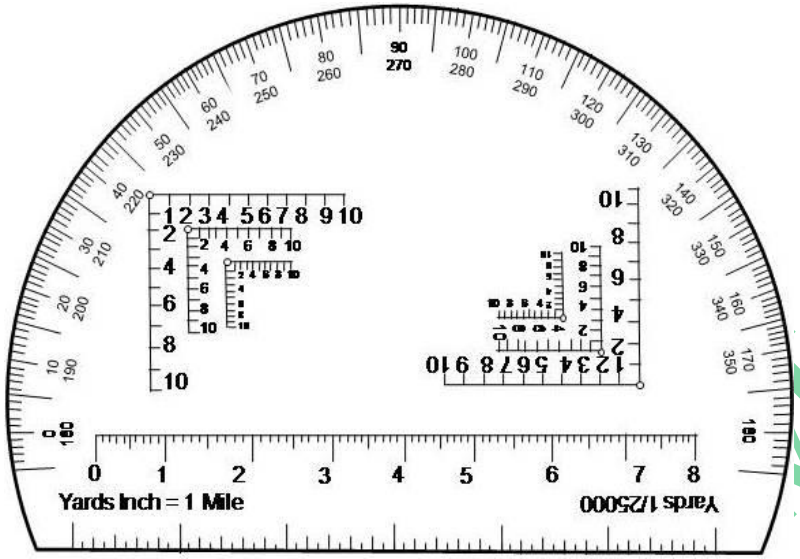
3. **SERVICE PROTRACTOR KE PRAKAR.** Service Protractor teen prakar ke hote hain:-

(a) **Vrittakar (Circular).** Aise protractoron ka prayog mukhya thurpar topkhane aur mortar platoonen karti hai. Ismein ek se lekar 360° tak ke nishan bane hote hain aur Kendra mein ek chhed hota hai jiski seedhaie se kisi object ki bearing padhte hain.



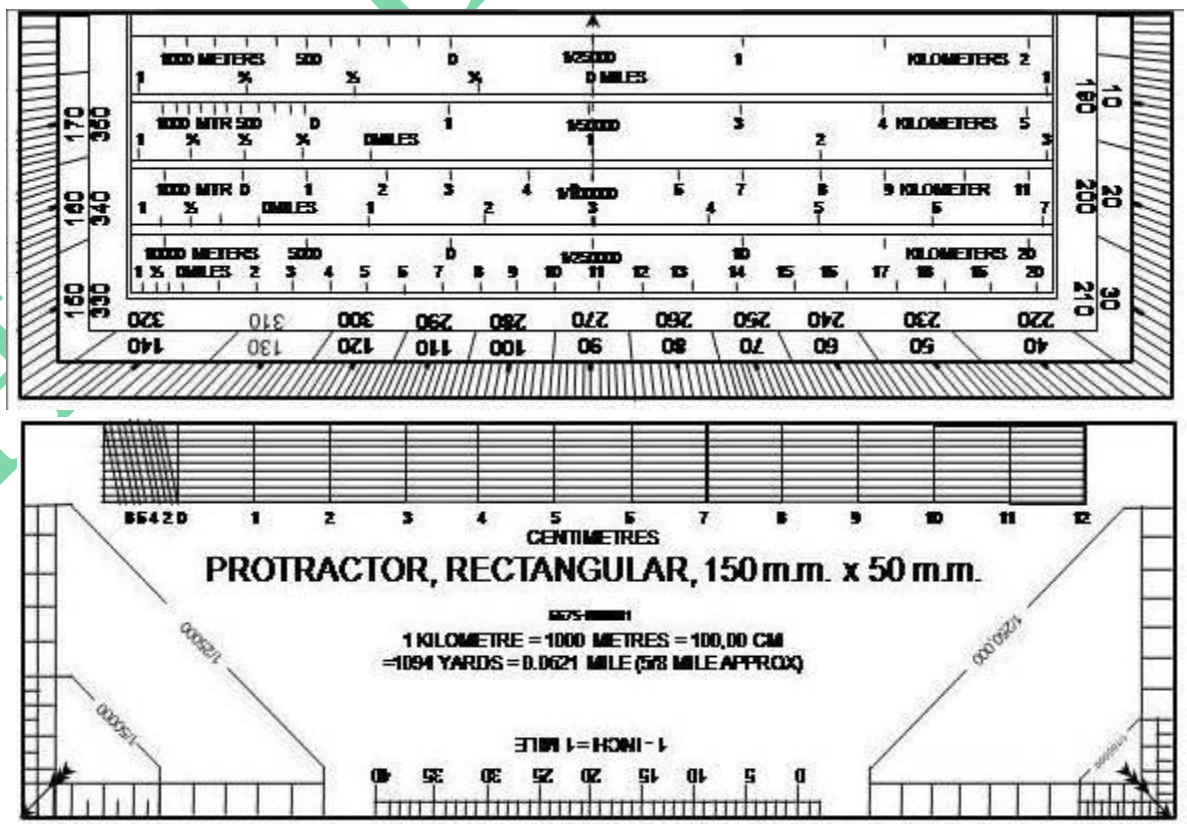
Circular Service Protractor

(b) **Ardh Vrittakar (Semi-Circular).** Ye Protractor topkhane ki uniton ke prayog mein aate hain. Inhein Service Protractor mark VIII ke naam se jana jata hai. Inka aakar ardh vritaakar hota hai. Ismein kinarer ke sath-sath 0° se 180° tak ghari ki suiyon ki disha mein degreyon ke nishan bane hote hain. Iski Zero Edge wali rekha ke sath - sath one inch ki scale bani hoti hai. Iske nichle kinare ke sath-sath 1/63360 ki scale linen gajon mein aur 1/25000 tatha 1/50000 ki scale linen meteron mein bani hoti hain.



Semi-Circular Service Protractor

(c) **Aayatakar (Rectangular).** Map reading mein mukhya thur par isi service protractor ka prayog kiya jata hai. In protractaron ki lambaie 6 inch aur churaie 2 inch hoti hai. Inke teen kinaron par bahar ki oar ek se 180° tak aur bhitar ki taraf 181° se 360° ko dikhane wali rekhayen kheenchi hoti hain. Inmein anshon ke ank kewal pratek dasveen rekha par hi hoti hain. Degreyon ki ginti ghari ki sui ki disha mein hoti hai. Ismein bhitar ki taraf 90° ke theek samne ek teer (↑) ka nishan hota hai jise Zero Edge kahate hain. Kisi bhi sthan ka bearing padhte samay **Zero Edge** ko apne maujuda sthan ke theek upar rakhte hain. Is prakar object jis degree par aata hai, vah uski bearing hoti hai.



GRID REFERENCE

1. **PRASTAVANA.** Bhugol ke manchitron mein uttar se dakshin tatha purav se paschim ki oar jati hui rekhaen kheenchi jati hain jinhe Akshansh (Latitude) tatha Deshantar (Longitude) rekhaen kahate hain. Is prakar survey mapon par bhi bengani evam lal rang ki jo rekhaen kheenchi jati hain un rekhaon ko Grid rekhaen kahate hain. Purane samay mein kisi bhi sthan ki sthiti akshansh tatha deshantar rekhaon ki madad se degriyan, minuton tatha secondon mein bataya jata tha, parantu aajkal iska sthan Grid Reference ne le liya hai.

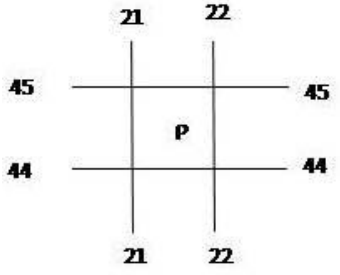
2. **ARTH.** Survey Mapon par lal rang ya bengani rang ki uttari tatha puravi rekhaon ke jal ko grid kahate hain. In grid rekhaon ki sahayata se survey mapon par jo reference diye jate hain, unhe Grid Reference kahate hain.

3. **EASTING LINES.** Uttar se dakshin ko milane wali ve rekhaen jinka kram paschim se purav ki oar badhta hai, Puravi rekhaen kahalati hain.

4. **NORTHING LINES.** Purav se paschim ko milane wali ve rekhaen jinka kram dakshin se uttar ki oar badhta hai, Uttari rekhaen kahalati hain.

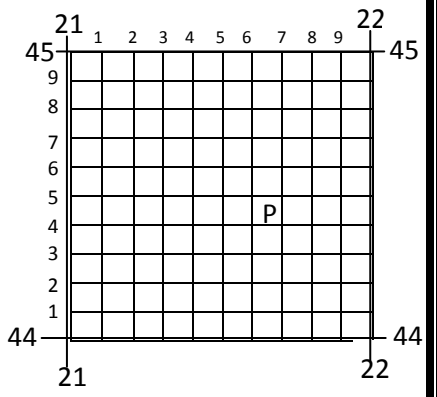
5. **REFERENCES**

(a) **4 Figure GR.** Pahale purvi rekha ke ank Tatha bad mein uttari rekha ke ank likhne par 4 Figure GR malum hota hai. Jaise chitra Mein bindu **P** ka 4 figure GR = 2144 hota hai.

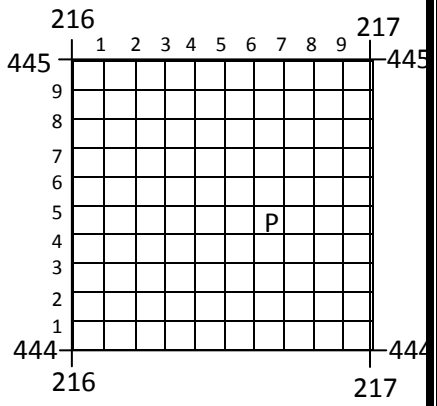


(b) **6 Figure GR**

(a) Jis sthan ka GR nikalna ho use mar lete hain.
(b) Object sthit grid ko 10 bagh bana lete hain.
(c) Nishan ke Madhya bagh se gujarti rekha kea aas pas wale varg ki sankhya likh dete hain. Purvi hisse ko purvi rekha ke number ke sath tatha uttari hisse ko uttari rekha ke number ke sath likhte hain.
(d) Romer ke prayog se GR nikalna aasan hota hai joki 100 X100 mtr/gaj ke ilake ko darshata hai.
(e) Bindu **P** ka 6 figure GR = 216444



(c) **8 Figure GR.** Ismein Grid squire ke 100 bagh Banakar 6 Figure wali vidhi se hi GR nikalte hain. Aage ke hisson ke ank 00 se 99 tak badhate hain, jinhein purvi tatha uttari rekha ke ankon ke bad likhate hain. 8 figure GR 10 x 10 meter ke kshetra ko darshata hai. Mukhya bindu **P** ka 8 figure GR = 21664444.



BEARING

1. **PRASTAVANA.** Artillery ki gun ko laraie ke kshetra se kafi peechhe rahakar bhi aakraman, defence tatha withdrawl aadi sabhi halation mein aage ke sainikon ki puri-puri sahayata karni parti hai. Gun ka fire OP dwara bearing va duri ke hisab se hi kiya jata hai, yadi shatru ka sahi bearing nahin liya jay to shatru ka koie bhi nukshan nahin hota hai apitu apna hi samay aur gola- barud vyarth jate hain.

2. **ARTH.** Bearing ka shabdik arth ghumav hai, yeh kisi ek bindu par do rekhaon ka ghumav hai.

3. **PARIBHASHA.** Kisi ek bindu par milne wali un do saral rekhaon ke Madhya ghari ki suion ke anurup anshon mein nape gae konatmak duri ko bearing kahate hain, jiski ek rekha uttar rekha hoti hai.

4. **MAHATVA**

(a) Sainikon ki schemon, route marchon mein jarurat parti hai.
(b) Tankon, topon va hawai jahajon ko jarurat parti hai.
(c) Night March mein ek bound se dusare bound par jane ke liye.
(d) Map to Ground ya Ground to Map ki karyawahi ke liye.
(e) Apni tatha shatru ki position gyat karne ke liye.

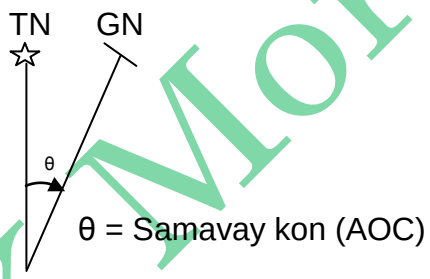
5. **BEARING TATHA KON MEIN ANTAR**

(a) Kon kinhin do rekhaon ke beech ki konatmak duri hai, parantu bearing ke liye yeh jaruri hai ki do rekhaon mein ek rekha uttar ki ho.
(b) Kon ko clockwise aur anti clockwise napa ja sakta hai parantu bearing hamesha clockwise napi jati hai.
(c) Pratyek bearing ko kon kaha ja sakta hai parantu pratyek kon bearing nahin hota hai.

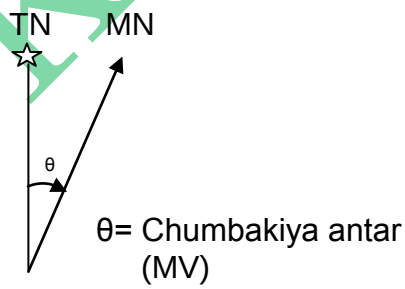
6. **BEARING TATHA UTTARI REKHAYEN.** Bearing tatha uttari rekhaon ka ghanisht sambandh hai bearing ki ek rekha observer ko tatha dusari rekha observer se uttar ko milati hai, is prakar bearing ke adhyayan ke liye uttaron ke prakar tatha unki sthitiyon ke bare mein janna jaruri hai. Yadi prithvi ke globe ko dekha jaye to teen prakar ki rekhaen milti hain. Yeh rekhayen uttar ki oar jati hain, parantu unmein antar hota hai. Pahali ve rekhayen jo uttar tatha dakshini dhruv par jakar milti hain. Yeh rekhayen ek dusare ke samantar nahin hoti hain. Bhumadhya rekha par inki duri jyada hoti hai inhein deshantar rekha kahate hain, yeh sadeb apne sthan par sthit rahati hain tatha survey map par inhein kale rang se dikhaya jata hai. Dusari ve rekhayen hain jo survey mapon par lal rang se dikhaie jati hain. Teesari ve rekhayen hain jo Canada ke uper sthit Buthiya Land se mili hui hain inhe chumbakiya uttari rekhayen kahate hain tatha yeh sthir nahin hoti hai. Prithvi ki gati ki vajah se yeh badalti rahati hain. Yeh rekhayen ek chumbakiya parvat srankhala se juri huie hoti hain. Yeh chumbak prithvi ke aar-par hai yeh parvat shila prithvi ki kil par lagbhag 15° ka kon banati hai. Iska uttari sira prithvi ke dakshini dhruv ke pas Victoria Island mein hai, Yeh sthan 72° 25' dakshini akshansh tatha 154° purvi deshantar par sthit hai. Is sthan ko **SHELTON ANTARCTICA EXPEDITION** ne khoja tha iska dakshini sira prithvi ke uttari dhruv ke pas Buthia Land se prakat hota hai yeh sthan 70° 05' uttari akshanshva 96° 46' pashchimi deshantar par sthit hai. Ise Sir John Rose

ne khoja tha, prithvi ki gatiyon ke karan iski sakthi badalti rahati hai jiski vajah se ye rekhayen sthir nahin hain. Bharat mein yeh antar 3° purva ya paschimi tak rahata hai iska ghatna-badna prithvi ke dharatal par kisi sthan par paye jane wale chumbakiya kshetra, kachche khanij padarth va sthan vishesh par nirbhar karta hai yahi karan hai ki survey map par inhein dikhaya jata hai kafi chhote scale ke map par ise nahin dikhaya jata hai. Kafi chhote scale ke map par saman magnetic variation wale sthanon ko milane wali rekha hoti hai jinhein **ISOGONAL** rekhayen kahate hain.

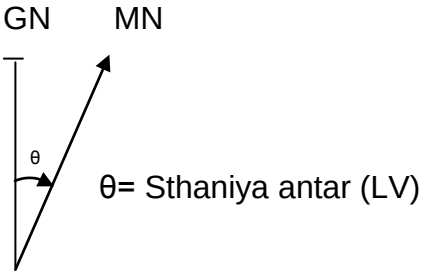
7. **SAMAVAY KON (AOC).** Kisi sthan par vastavik uttar se grid uttar ke beech ke konatmak duri ko Samavay Kon ya Angle of Convergence kahate hain. Yeh TN se liya jata hai tatha grid north, East ya West mein ho sakta hai.



8. **CHUMBAKIYA ANTAR (MV).** Kisi sthan par vastavik uttar se Chumbakiya uttar ke beech ke konatmak duri ko Chumbakiya antar ya magnetic variation kahate hain. Yeh TN se liya jata hai yeh antar East ya West mein ho sakta hai



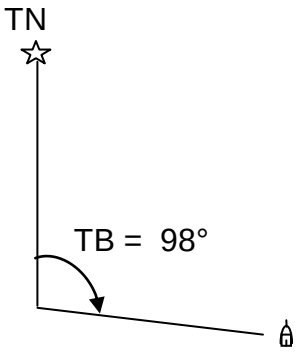
9. **STHANIYA ANTAR (LV).** Kisi sthan par Grid North se Megnatic north ke beech ki konatmak duri ko sthaniya antar ya local variation kahate hain. Isse GN se liya jata hai.



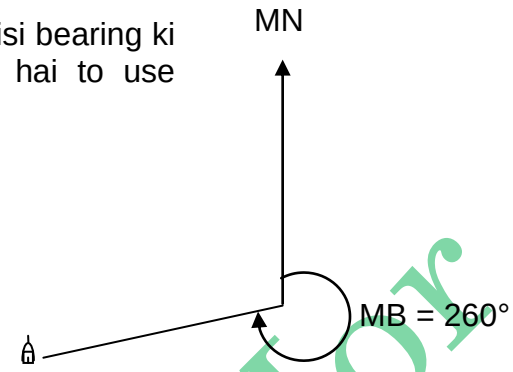
10 **BEARING KE PRAKAR (Types of Bearing)**

(a) **Uttar ke aadhar par.** Uttar ke aadhar par bearing teen prakar ki hoti hai.

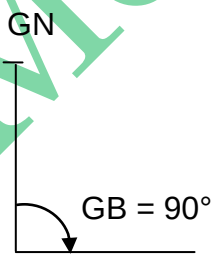
(i) **Vastavik Bearing (TB).** Yadi kisi bearing ki north ki rekha TN(True North) hai to vah True Bearing hogi.



(ii) **Chumbakiya Bearing(MB).** Yadi kisi bearing ki rekha Megnatic north (MN) se padi jati hai to use Megnatic Beaing kahate hain.

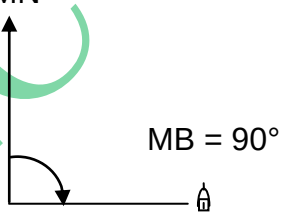


(iii) **Manchitriya Bearing(GB).** Yadi kisi bearing ki rekha Megnatic north (MN) se padi jati hai to use Megnatic Beaing kahate hain.



(b) **Sthiti ke aadhar par.** Sthiti ke aadhar par bearing do prakar ki hoti hai:-

(i) **Forward Bearing.** Observer se Object tak ki bearing ko Forward Bearing kahate hain.



(ii) **Back Bearing.** Object se Observer ki bearing ya Forward Bearing ki ulti bearing ko Back Bearing kahate hai isse nikalne ke liye yadi Forward Bearing 180° se jyada hai to 180° ghata dete hain aur yadi 180° se kam hai to 180° jor dete hain.

Note - Yadi compass ki apni truti ke karan ya sthaniya chumbakiya aakarshan ki vajah se compass sahi chumbakiya bearing nahin dikhata hai to ise compass bearing (CB) kahate hain.

RELIEF

1. **PRASTAVANA.** Prithvi ka dharatal kahin samtal hai to kahin ubar-khabar hai. Is par kahin ghatiyan hain, to kahin chotiyan, kahin gadhdhe hain, to kahin chttanen. Vartaman mein is prakar ki unchi-nechi, tuti-futi aur ubar-khabar zameen ka mahatav sainik dristi se aur adhik bad gaya hai isliye sabhi prakar ki bhumi ko survey mapon par sahi-sahi dikhana bara hi jaruri ho gaya hai. Bhumi ki lambaie evam chhoraie ko aasani se map par dikhaya ja sakta hai. Parantu unchie aur gaharaie ko dikhana evam samajna katin hai. Unchaie evam gaharaie ko **Geometric Three Dimentional Features** kahate hai. Manchitra par **Two Dimentional features** ko dikhana aasan hai kyunki ismein lambaie tatha chhoraie do hi maap hote hain. Teesari maap prakat karna katin hai. Relief dwara pahar ka swaroop, aakar aadi ko manchitra par dikhane ke liye lambaie, chhoraie ke atirikt unchaie bhi dikhaie jati hai. Yeh unchaie aadhar tal se li jati hai. Bharat mein **Mean Sea Level** Chennai se liya jata hai.

2. **PARIBHASHA.** Bhumi ke tute-fute evam ubar-khabar bhag arthart prithvi ki unchaie nechaie ko **Relief** kahate hain.

3. **MAHATVA.** Relief ka sahi-sahi gyan saamrik drishti se mahatvapuran hota hai. Yadi relief ka chitran ya prakatan achchha ho aur uski sahi samaj ho to isse nimnalikhit labh hain:-

(a) Shatru ke kshetra mein safalta purvak aakraman kiya ja sakta hai.

(b) Commander relief ko dhyan mein rakhkar uchit evam sahi nirdesh de sakta hai.

(c) OP ka sthan suvidha poorvak chuna ja sakta hai.

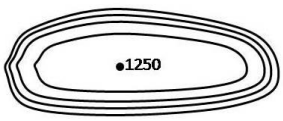
(d) Defence mein hathiyaron ke liye sahi sthan ka chunav kiya ja sakta hai.

(e) Patrolling ke route ka suvidhajanak chunav kiya ja sakta hai.

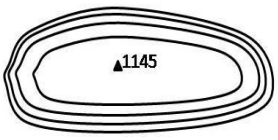
4. **RELIEF PRAKAT KARNE KI VIDHIYAN.** Relief prakat karne ki nimnalikhit vidhiyan hain:-

(a) **Ganitiya Vidhiyan**

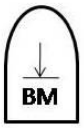
(i) **Spot Height.** Yeh manchitra par vishisht unchaie dikhane wale bindu ke samip ankit ki jati hain. Parvat ke shikaron ki unchaiyan is vidhi se prakat ki jati hain. Yeh unchaie samudra tal se li jati hai. Is vidhi mein 4 meter tak ki galti ho sakti hai



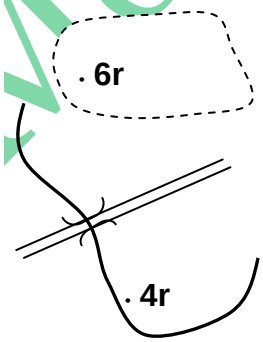
(ii) **Trig Height.** Jab kisi kshetra ka **Triangulation Survey** kiya jata hai to surveyor ek hi pahari ke nazdiki shikharon ka survey karke unki unchaiyon ka aaosat leta hai aur map par ek chhota sa tribhuj banakar uske dahine oar unchaie likh deta hai. Is vidhi mein 01 meter tak ki galti ho sakti hai.



(iii) **Bench Mark.** Survey karne walon ki sahayata ke liye mahatvapurna sthanon ki samudra tal se unchaie nikal kar cement pillar banakar us par likhi jati hai tatha sath hi vahan par ek teer ka nishan bana diya jata hai, yeh unchaie sahi aur vishvasaniya maani jati hai. Map par teer ke nishan ke sath likhi gayi unchaie teer mark ke unchaie hoti hai na ki sthaniya zameen ke tal ki.



(iv) **Relative Height.** Jab dharatal ka koi sthan apne aas-pas ke sthanon se itna kam uncha ya gahara hota hai ki map par ek contour se bhi nahin dikha sakte, arthat kai bar nadi, nalon, gadhdhon ya jhilon, mitti ke teelon, seedhi chttanon ki gaharaie ke pas unchaie ya gaharaie ko map par dikhane ke liye aas-pas ke dharatal se unki aapekshit unchaie ya gaharaie nikalte hain aur map par unchaie ke sath English letter small 'r' banakar likha jata hai. Jaise **6r** yeh unchaie samudra tal se na hokar aas-pas ke dharatal se hoti hai.



(b) **Chitriya Vidhiyan**

(i) **Hachures.** Is vidhi ka avishkar Lehman ne 18th shatabdi mein kiya tha. Is vidhi se zameen ki unchaie ko kisi bhi ek rang ki chhoti-chhoti rekhaon se dikhaya jata hai. Rekhaon ka ek sira mota thata dusara sira patala hota hai. Jis taraf ko rekhayen moti hoti hain udhar zameen unchi hoti hai. Adhik unchaie ko dikhane ke liye rekhayen pas-pas evam kam unchaie ko dikhane ke liye rekhayen dur-dur hoti hain. Jis kshetra ki dhalaan 15° se adhik hoti hai, us kshetra ko chitra dwara darshane par vah chitra kala sa lagta hai. Agar inhein achchhi tarah banaya jaye to ye zameen ki hu-ba-hu tasveer bana deti hain lekin is tarike mein kuch kathinaieyan bhi hain. Hachures vidhi dwara dhalaan ka hona hi darshaya ja sakta hai, iske dwara sahi unchaie ko prakat karne mein nimna kathinaiyan aati hain:-

(aa) Is vidhi se dhalaan ke prakar ka gyan nahin hota.
(ab) Dhalaanon ko Theek-theek mapana mushkil hai.
(ac) Inki rekhaon ke karan dusari detailon ko nahin dikhaya ja sakta hai.
(ad) Yeh chhoti scale ki map ke liye upyukt nahin hai.
(ae) Inhein banane mein adhik samay lagata hai.

(ii) **Hill Shading.** Is vidhi ke anusar prithvi ke dharatal ko ek hi rang ki rangeen parton dwara dikhaya jata hai jaise-jaise prithvi ka tal uthta jata hai vaise-vaise rang bhi adhik gahara hota jata hai arthat adhik unchaie wale kshetra ko gahara rang karke dikhaya jata hai tatha kam unchaie wale kshetra ko halke rang se dikhate hain. Yeh vidhi bahut hi chhoti scale ke mapon mein prayog ki jati hai. Surya ke samane padane wali dhalaanon ko safed aur chhaya wale bhag ko halka kala karke dikhate hain.

(aa) **Gun (Merits)**

- ❖ Yeh ek saral vidhi hai.
- ❖ Ismein samay kam lagta hai.
- ❖ Map sundar evam kalapurna nazar aata hai.

(ab) **Dosh (Demerits)**

- ❖ Is vidhi mein nischit unchaie gyat nahin ki ja sakti hai.
- ❖ Is vidhi ke prayog se manchitra par anya details dhak jate hain.
- ❖ Is vidhi se parvat shikhar ya jheel ka nichala tal chhaya vihin rah jata hai. Donon ek jaise hi dikhaie dete hain.

(iii) **Layer Tints.** Relief ko dikhane ke liye is vidhi mein vibhinna rangon ki parton ka prayog kiya jata hai aur bhumi ko alag-alag rangon dwara halka ya gaadha karke darshaya jata hai. Samanyataya maidanon ko hare rang se, pahari bhagon ko bhure rang se, pani wale bhagon ko neele rang se tatha kheti ko peele rang se dikhate hain, yeh vidhi bahut lambe choare ilake ki vibhinnataon ko dikhane mein bari safal hoti hai. Survey mapon par is vidhi ka prayog uski bhinna-bhinna contour rekhaon ke beech mein bhinna-bhinna rangon ko bharkar kiya jata hai. Jaise-jaise contour rekhayen unche sthanon ko dikhati jati hain, rang bhi gahare hote jate hain. Yeh vidhi aamtour par ¼" map sheet par prayog ki jati hai.

(aa) **Gun (Merits)**

- ❖ Is vidhi mein bane map aakarshak aur sundar hote hain.
- ❖ Is vidhi se maidan, pahar aur pattharon aadi ka aasani se pata chal jata hai.
- ❖ Yeh pranali sabhi scale ke mapon ke liye upyukt hai.

(ab) **Dosh (Demerits)**

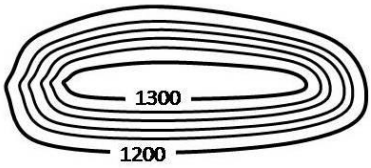
- ❖ Is vidhi se dhalaan ke kram ka pata nahin chalta hai.
- ❖ Gahara rang lagaane se anya vivaran dhak jate hain.
- ❖ Kisi khas dharatal ki sahi unchaie ka gyan nahin ho sakta hai.

(iv) **CONTOURS.** Survey of India ne is vidhi ka prayog map par relief prakat karne ke liye 1895 se prarambh kiya. Yeh vidhi relief dikhane ki sarvottam vidhi hai. In rekhaon ko map par bhure rang se kheencha jata hai.

(aa) **Paribhasha.** Survey of India dwara nirdharit survey mapon par kheenchi gaie bhure rang ki ve rekhayen jo ki samudra tal se saman evam nischit unchaiyon wale bhagon ke upar gujarti huie zameen ke anusar kam ya adhik duri ka chakkar lagakr apani-apani unchaie ki rekhaon se aakar mil jati hain, unhein contour rekhayen kahate hain.

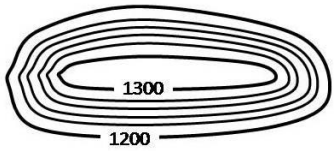
(ab) **Contour Rekhaon ke Prakar.** Survey mapon se lekar Eye Sketchon tak mein prayog hone wali sabhi contour rekhaon ko do bhagon mein banta ja sakta hai. Poona contour rekhayen va apoorna contour rekhayen.

➢ **Poorna Contour.** Jab contouron ko poorna roop se survey ke aadhar par khinchte hain, to is prakar se banaye gayecontour, Poorna Contour kahalate hain. Inko dikhane walicontour rekhayen poorna rekhaon se kheenchi jati hai. 1:50000 ke scale wale map mein pratyek 20 meter khare antaral par ye rekhayen hoti hain tatha pratyek panchvin rekha moti (Bold) hoti hai.

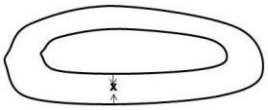


➢ **Apoorna Contour.** Jin sthanon ki unchaie sahi dang se na nikal sake, unko anuman lagaakar likha jata hai arthart jahan par ek poorna contour rekha ki unchaie nahin hoti hai vahan apoorna contour rekha khinchi jati hai. Inhein tuti rekhaon dwara pradarshit kiya jata hai. Yani ki poorna contour rekhaon ke saath antar spasht karne ke liye apoorna contour line ko beech mein tuti hui bnate hain. Yahi karan hai ki inhein apoorna contour rekhayen kahate hain.

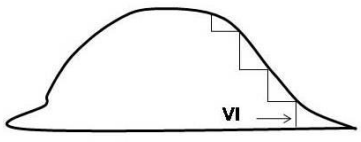
(ac) **Contour Value.** Kisi contour rekha ki samudra tal se unchaie hi contour value kahalati hai. Kuchh survey mapon par contour value panchven contour par likhi hoti hai yeh contour rekha anya contour rekhaon ki apeksha kuchh moti banaie jati hai.



(ad) **Contour Interval.** Do pas wali contour rekhaon ke beech ki hari unchaie ko contour interval kahate hain. Mertric scalon mein yeh meteron mein aur inch ki scalon ke mapon mein futon mein hoti hai.



(ae) **Vertical Interval.** Iska arth kinhein do nishanon ke beech ka khara fasala hota hai. Contour rekhaon par yeh un do ya do se adhik contour rekhaon ke beech ka khara fasala hota hai.



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DHALAAN
(SLOPE)

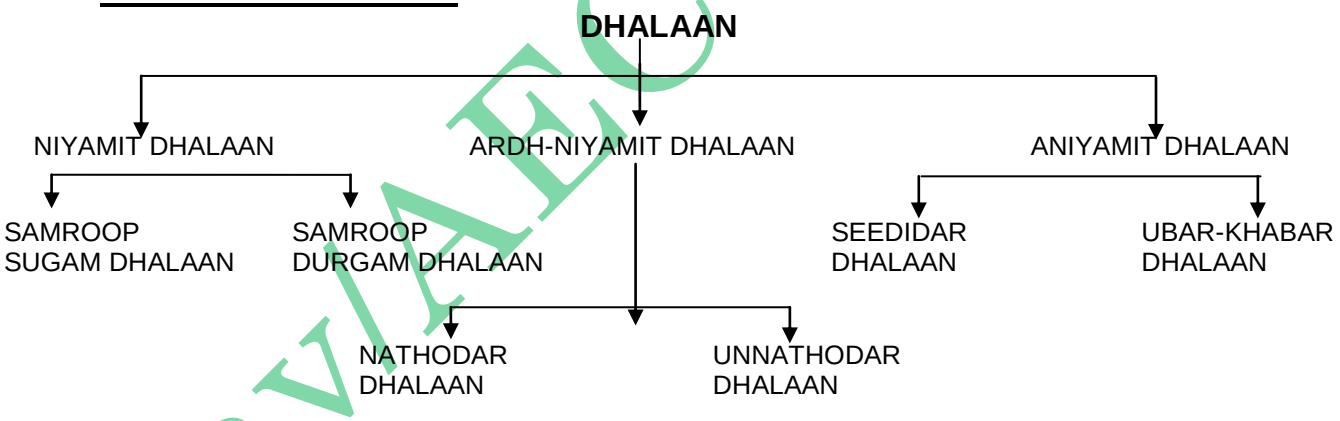
1. **PRASTAVANA.** Prithvi ki dharataliya banavat sab ek jaisi nahin hai. Prithvi ke unche-neeche dharatal ko map mein contour vidhi se prakat kiya gaya hai. Map reading mein unchaie-neechaie donon ko hi dhalaan kahate hain.

2. **ARTH.** Asaman unchaie wale sthanon ko milane wale prithvi ke aavaran ko dhalaan kahate hain.

3. **AAVASYAKTA**

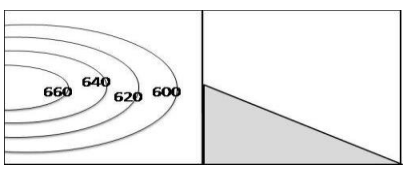
(a) Sainik karyavahi ki yojana banane ke liye.
(b) Artillery guno, tankon ke deployment ke liye.
(c) Hathiyaron ka chunav dhalaanon ke aadhar par hi kiya jata hai.
(d) Sainik toly ke aane-jane ke liye.
(e) Observation Post ki sthiti nirdharan karne ke liye.
(f) Visibility gyat karne ke liye.

4. **DHALAAN KE PRAKAR**

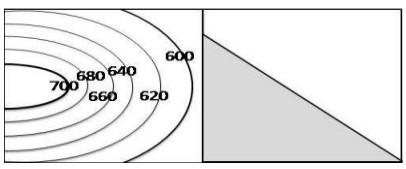


(a) **NIYAMIT DHALAAN**

(i) **Samaroop Sugam Dhalaan.** Jab dhalaan aarambh se ant tak ek hi krammein adhti hai aur aasan hoti hai to aisi dhalaanen Samaroop Sugam Dhalaan kahalati hai. Map par contouron ki duri saman hoti hai tatha is par sainik gariyan aaram se chad sakti hai.

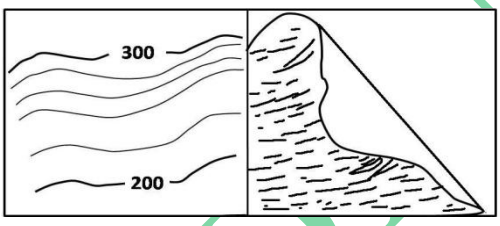


(ii) **Samaroop Durgam Dhalaan.** Niyamit roop se kathin dhalaan ko Samaroop durgam dhalaan kahate hain. Iske contouron ki aapasi duri kam hoti hai. Aisi dhalaanon par chadna kathin hota hai.

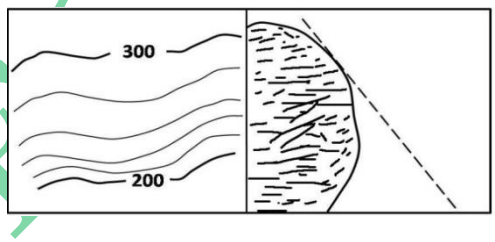


(b) **ARDH-NIYAMIT DHALAAN.** Is prakar ki dhalaanon ki chadhaie ke kram mein aadhi samanata hoti hai. Ismein yadi koie chadaie sugam hai to kuchh duri tak sugam hi rahegi aur durgam hai to kuchh duri tak durgam hi rahegi. In dhalaanon ke bhi do parakar hote hain.

(i) **Natodar Dhalaan (Concave).** Is prakar ki dhalaan mein aarambh mein chadhaie aasan aur ant mein kathin hoti hai. Map par contour aarambh mein dur-dur tatha ant mein pas-pas hote hain ye dhalaanen OP post lagane mein theek hoti hain aur iski banavat gufa ke saman hoti hai.

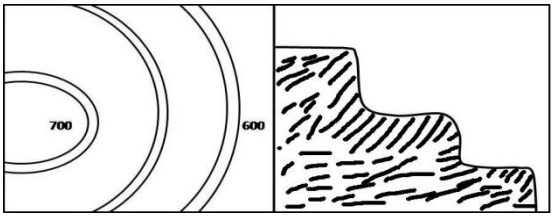


(ii) **Unnatodar Dhalaan (Convex).** Is prakar ki dhalaanon par pahle-chadhna kathin tatha bad mein aasan hota hai, Map par contour pahale pas-pas tatha ant mein dur-dur hote hain aisi dhalaan mein visibility kathin hoti hai.

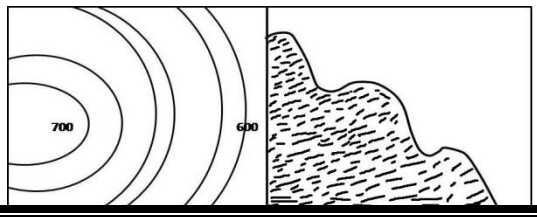


(c) **ANIYAMIT DHALAAN.** Jis dhalaan mein koi bhi samanata nahin hoti hai unhein aniyamit dhalaan kahate hain. Iske do prakar hote hain.

(i) **Seedhidaar Dhalaan.** Yeh dhalaan seedhi numa hoti hain. Paharon par kheti ke liye aisi hi dhalaan kam mein laie jati hain.



(ii) **Ubar-Khabar dhalaan.** Ubar-Khabar dhalaan vah dhalaan hoti hai jiski banawat mein kram nahi hota hai. Atah yeh dhalaan ek sath hi samaroop sugam samaroop durgam, Convex va Concave sabhi ka mishran ho sakti hai.



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GRADIENT

1. **ARTH.** Bhinnon mein bataie gaie dhalaan ko gradient kahate hain. Gradient mein dhalaan ko hamesha ansh ke roop mein ek maan kar hi kiya jata hai.

2. **GRADIENT NIKHALNE KI VIDHI**

$$G = \frac{VI}{HE}$$

3.

Vahan	Gradient	DOS
Train	1/40	1 ½°
Anya Vahan	1/12	5°
Bicycle	1/10	6°
1 Ton	1/7	8°
Jeep	1/5	12°
Motor Cycle	1/4	15°
Jonga	1/3	20°
Troops	1/2	30°
Tank	1/1	45°

VIBHINNA VAHANON KA GRADIENT

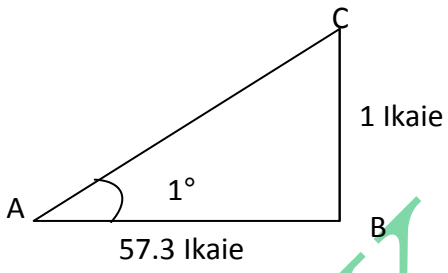
4. **DOS (DEGREE OF SLOPE)**

Arth - Jab dhalaanon ko degree mein darshaya jata hai to use DOS kahate hain. Artharth kisi samkon tribhuj ke aadhar aur karn ke beech ka kon DOS kahalayega.

DOS nikalne ke liye pahale ham Gradient ko 57.3 se guna kar dete hain. Yadi kisi samkon tribhuj ke aadhar aur karn ke beech ka kon 1° ho aur lamb ki lambaie 1 ikaie ko us dasha mein aadhar 57.3 ikaie hoga.

DOS = G X 57.3 (or) $\quad$ **DOS =** $\frac{\textbf{VI}}{\textbf{HE}}$ **X 57.3**

Note :- Dhyan den ki VI aur HE ki ikaie ek hi ho.



RATRI PRACHALAN
(NIGHT NAVIGATION)

1. **ARTH.** Compass aur Night March Chart ki sahayata se jab koie navigation party vidhi poorvak aur kisi khas uddeshya se ratri ke samay aavagaman karti hai, to is prakriya ko Night March kahate hain.

2. **AAVASHYAKTA**

(a) Shatru ki gatividhi, morchabandi, hathiyaron ka layout, navinatam sthiti aur aavashyak gupt suchanayen prapt karne ke liye.
(b) Shatru ke ilake ki jankari prapt karne ke liye taki yudh ke samay fayde madad ho.
(c) Ghuspait ke dwara shatru mein dar paida karna tatha apne jawanon mein atmavishvas paida karna.
(d) Apne position badalne athva shatru ke kisi picket par kabja karne ke liye.
(e) Apne pechhe tps ke sath communication kayam rakhana.
(f) Shatru kkkshetra mein fansi apni toly ko nikalne ka liye.
(g) Hawai hamle se bachav ke liye.
(h) Shatru ke aadhik se aadhik najdik pahunchkar uske addon ko barbad karne ke liye.

3. **VIDHI**

(a) Chandini raat mein. (b) Taron ki raat mein. (c) Badal bhari raat mein.

4. **AAVASHYAK SAMAGRI**

(a)	Compass.	(b)	Night March Chart.	(c)	Luminous Stick.
(d)	White Cloth(1'x1').	(e)	Black-out Toarch.	(f)	Black Blanket.
(g)	Feeta ya Chuna.	(h)	Rope, Stick 5'-6'.	(j)	Chhote-Choote kankad.

5. **NIGHT MARCH KI TAIYARI.**

(a)	Map par recce karna.	(b)	Rukawaton ki jankari.
(c)	Marching chart banana.	(d)	Compass set karna.
(e)	Ishare nirdharit karna.	(f)	Briefing (aadesh aur vichar).
(g)	Aasan, chhote va surakshit raste ka chunav.		

6. **NIGHT NAVIGATION PARTY KI BANAVAT AUR UNKE KAAM.** Ismein kam se kam teen(03) (Guide, Asst. Guide aur Recorder) tatha adhik se adhik aath (08) sadasya hote hain.

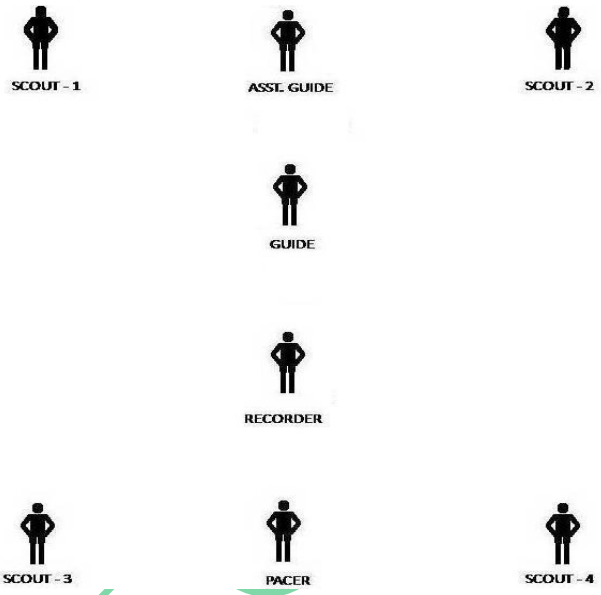
(a) **Guide.** Iske paas luminous stick aur set kiya hua ek compass rahata hai, jiske bearing par march hona hai ya ho raha hota hai.

(b) **Assistant Guide.** Iski peeth par safed kapra(White Cloth) bandha hota hai. Yeh guide ke sanket ke anusar theek bearing par chalta rahata hai. Raste mein parne wale pani ya gaddon ki gaharaie dekhane ke liye iske paas ek 5' ya 6' lambi stick bhi hoti hai.

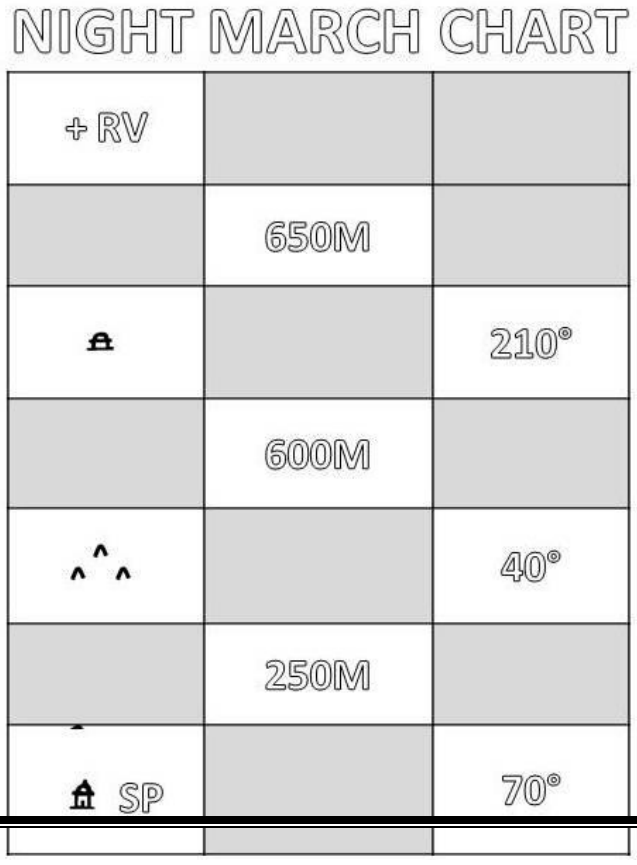
(c) **Recorder.** Iske paas set kiye shesh compass, Marching chart aur fasala napne ka feeta ya kadamon ko ginti ke liye chhote-chhote patthar hote hain.

(d) **Feeta/Chuna wala.** Yeh duri napne mein recorder ki madad karta hai. Sath hi apne loutne mein madad ke liye aur peechhe aane wale sainik party ke path pradarshan ko chuna fankta hai. Vyakti kam hone par iska kam recorder karta hai.

7. **NIGHT NAVIGATION PARTY KI BANAVAT**



8. **NIGHT MARCH CHART**



FIELD SKETCH

1. **PRASTAVANA.** Map reading ka uddeshya kewal bane banaye mapon ko padhane ya samajhne se hi samapt nahin ho jata, balki kisi bhi zameeni ilake ko kagaj ke upar banana bhi iske antargat aata hai. Atah: map koshal mein vidhyarthiyon ke liye yeh bahut jaruri hai ki ve is yogya ho jayen ki aavashyakta padane par kisi bhi zameeni ilake ko kagaj ke upar sahi roop mein prakat kar saken.

2. **PARIBHASHA.** Nishchit scale va conventional signs ka prayog karke jab kisi zameeni ilake ko apni mani huie scale mein svatantra roop se ya survey map ki madad se kagaj par banaya jata hai. Hath se banaya gaya yah khaka Eye Sketch kahalata hai. Yadi ismein Military Symbols ka prayog kiya jay to yah Field Sketch kahalata hai.

3. **AAVASHYAKTA.** Field sketch ke mahatvapoorn hone ke nimnalikhit karan hain:-

(a) Sainikon ki zarurat ko pura karne mein survey map prayah purane pad jate hain.
(b) Mapon ki short supply bhi sketchon dwara puri ki jati hai.
(c) Kshetra vishesh ki jankari ke liye bare hi mahatvapoorn hote hain.
(d) Field sketchon sahit sainik report kafi achchhi mani jati ahi.
(e) Aavashyakta padane par uchcha aidhikariyon ko bhi bhejne parte hain.
(f) Scheme, Training tatha Practice ke liye.
(g) Upto date zamini banavat ko samajhane ke liye.
(h) Yuddh mein commander ko kshetra ke ilake ki jankari ke liye.
(j) Map Reading ki sikhalai ke liye.

4. **FIELD SKETCH KI VISHESHTAYEN**

(a) **Sheeghrata** - Aavshyakta padane se pahale banakar taiyar ho janej chahiye.

(b) **Sampoornata** - Aavshyaktanusar sampoorn suchnayen dene wale hote hain.

(c) **Satyata** - Inmein dikhaie gaie relief aur zameeni details poorna roop se sahi aur vishwas janak honi chahiye.

(d) **Spashtata** - Jo kuchh bhi dikhaya jaye vah spasht hona chahiye.

(e) **Swachchhata** - Pratyek banavat swachchh va saaf suthri ho.

(f) **Saarthakta** - Jis uddeshya se banaye jayen unhain poora karte hon.

5. **FIELD SKETCH BANANE KE LIYE ZARURI SAMAN.** Field sketch banane ke liye nimnalikhit saman ki zarurat hoti hai:-

(a) Map board ya Drawing board.
(b) Drawing paper ka ek tukara.
(c) Prism Compass.
(d) Service Protractor aur scale.
(e) Pencil aur Rubber.

6. **FIELD SKETCH BANANE KA TARIKA**

(a) Khake ki roop rekha. Kagaj ke aakar ke anusar hi khake ki roop rekha par vichar karna chahiye kam se kam 1 ya ½ inch ki donon oar chhodi jani chahiye.

(b) Base Line. Base line ka chunav is tarah karna chahiye ki kshetra ki base line ke donon siron par do point vishesh roop se dikhen. Yeh donon point ek dusare ki se dikhaie den. Jahan tak sambhav ho base line bilkul sahi-sahi mapni chahiye.

(c) Magnetic North. Kagaj ke right side mein Magnetic North line banayen.

(d) Mukhya Point. Mukhya point kshetra ki pramukh jagah hoti hai. Ye point un jagahon ki chumbakiya bearing padhkar nishchit kiye jate hain. Koie dusari jagah par jane se pahale base line ke donon siron se usi jagah ki bearing ankit kar li jati hai.

(e) Vivaran ko bharna. Mukhya point ke aas-pas ghumkar nala, pagdandi, khaie aadi anya byore nishchit kar lene chahiye.

(f) Scale. Field Sketch mein scale teenon prakar se dikhayen.

(g) Anya chhote-chhote vivaran:-

(i) Form Line. Aam tor par form line field sketch par hi banaie jati hai, ye 20 meter se kam unchaie wale contour interval ko dikhane ke liye banaie jati hai.

(ii) Nale ka bahav. Nale ka bahav teer ka nishan lagakar dikhayen.

(iii) Sadak ya pagdandi sanketak duri aur sthan ko dikhata hai.

7. **FIELD SKETCH KO ANTIM ROOP DENA.** Khaka saaf-saaf banao, anavasyak vivaranon ko mita do aur mukhaya point ko spasht roop se dikhao. Field sketch par nimnalikhit jankari saaf-saaf likhi honi chahiye:-

(a) **Shirshak.** Shirshak bare-bare shabadon mein hona chahiye iske niche map sheet number aur sketch ka uddeshya bhi diya hona chahiye.

(b) **Chumbakiya uttar.** Khake ke dahine hashiye mein ek chumbakiya rekha khinchen.

(c) **Scale.** Scale line ki lambaie 4 inch ya 10cm se kam ya 6 inch ya 15cm se jyada nahin honi chahiye.

(d) **Contour Interval.** Contour interval scale line ke niche likha jata hai.

(e) Scale ke bayin oar sabse niche sthan, tarikh, samay aur mosam tatha dahine oar sabse niche Number, Rank, Name, unit diye jane chahiye.

8. **SKETCHON KE ANYA PRAKAR**

(a) Plane Table Sketch. (b) Prismatic Compass Sketch. (c) Traversing. Sketch
(d) Hawai Photo Sketch. (e) Tactical Sketch. (f) Memory Sketch.
(g) Panorama Sketch.

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RESTRICTED

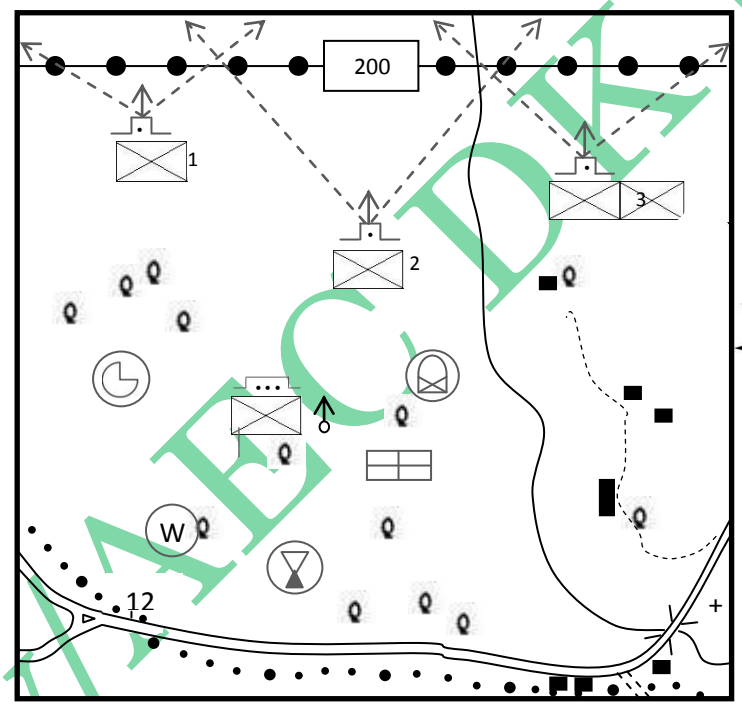
FIELD SKETCH

OF

THE GIVEN AREA

AIM : PL IN DEF

REF : MAP SHEET NO 43 K/4



SCALE : 2 CM = 100 M RF : 1/5000

100M 75 50 25 0 100 200 300 400M

CI= '0'M

PLACE	: c/o 56APO	No	:	INDEX NO
DATE	: 17 JUL 2009	RANK	:	
TIME	: 1000 Hrs	NAME	:	
WEATHER	: CLEAR	UNIT	:	

JD AND FORM LINE APPROX

ASSUMED DATUM LEVEL '0' MTR

RESTRICTED

ORIENTEERING

1. **PRASTAVANA.** Siksha manovigyan ne sikshan paddhatiyon mein aamul-chul parivartan kiya hai. Kriyaon dwara siksha dena manovigyan ke siddhant par aadharit hai. Chunki map reading ek vyavaharik visay hai, jisse kaksha mein seekhana asambhav hai. Isiliye map reading mein bhi khel-khel mein sikhalai di jane lagi. Jisse orienteering kahate hain.Map koashal mein nipunata hasil kar ne ke liye outdoor abhyas aavashyak hain tatha iske liye orienteering ek aadarsh vishay hai.

2. **ITIHAS.** Yeh khel pratha Britain, Norway, Switzerland, Sweden aadi deshon mein pahale se prachalit thi. Ek bar 1967 mein British aur Swedish sainikon ke beech map reading ki pratiyogita hui. Ismein Swedish army vijayi hue aur British army ki haar hui. British sainikon ke pramukh Capt JR Chapman the. Parajay ke karan Chapman ko bahut dukh hua aur unhone khel-khel mein map reading ki shuruat ki jo safal raha. England se prakashit hone wali patra-patrikaon ne is khel vidhi ko pramukhta se chhapa jisko Bhartiya sena mein tatkalin sena prashikshan nideshak DMT baad mein Maj Gen (DGMT) ML Thapan ne padha aur 1968 mein AEC Training College & Centre, Pachmarhi mein chal rahe Map reading coarse Ser No 22 mein sarvapratham sikshan hetu lagu karwaya.

3. **ARTH.** Yeh ek kala hai jismein Map va Compass ki sahayata se ek parichit sthan se anya aparichit sthan tak seeghrata evam durusti se aasan evam chhote tatha surakshit marg se nirdharit samay par pahunchte hain.

4. **UDDESHYA**

(a) **Shaikshnik Uddeshya**

(i) Map aur Compass ke prayog mein dakshata hasil karna.
(ii) Sheegra nirnay lene ki shakti tatha aatma vishwas ko badhana.

(b) **Samarthya Uddeshya**

(i) Pratiyogita ki bhawana ko badhana.
(ii) Sharirik kshamata ka vikas karna.
(iii) sharirik va mansik yogyata ka talmel.
(iv) Lagatar map reading ka abhyas karwana.

5. **SHABDAWALI**

(a) SP (Starting Point). (b) RV (Rendezvous). (c) Start Time.
(d) Point Value (Score Event). (e) Finish Time. (f) Penalty. (g) Event Card.

6. **ZARURI SAMAN**

(a) **Prathiyogi ke liye saman**
Map, Map Case, Compass, Service Protractor, Marking Pen va Pencil.

(b) **Sanchalakon ke liye saman**
Control Marker, SP & RV board, Flag, Master Stand, Event Card, Enlargement of the Ex area aur Recorder Sheet.

7. **VISHESH SAMAN**

(a) Cross country tatha Line event ke liye Master Map va Vivaran suchi.
(b) Route event ke liye chuna, fitha, sight rule va do rangon ke flags.
(c) Raatri abhyas ke liye lalten va map reading torch.

8. **ABHYAS KE PRAKAR**

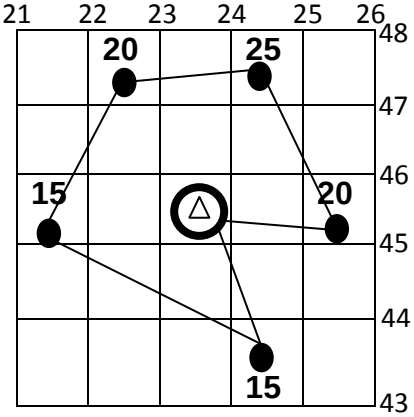
(a) **Prarambhik Abhyas.** Map reading ke vishay mein ruchi paida karne ke liye abhyas prarambh mein diya jate hain. Yeh abhyas bahut hi aasan hote hain, in abhyason mein chhota route, kam duri aur kam points hote hain. Jo ki kam samay mein dhundhe ja sakte hain.

(i) **Treasure Hunt.** Is abhyas mein kisi point par chhipakar ya zameen mein dabakar kuchh inam ya koi vasthu rakh dete hain, sainikon ko dhundhane ke liye GR de diya jata hai. Map aur compass ki sahayata se us GR par pahunch kar inam ya vastu ko nikalkar le jate hain. Yeh abhyas akele ya syndicate mein ho sakta hai. Abhyas aasan aur inami hone ke karan map reading mein sainikon ki ruchi barhati hai.

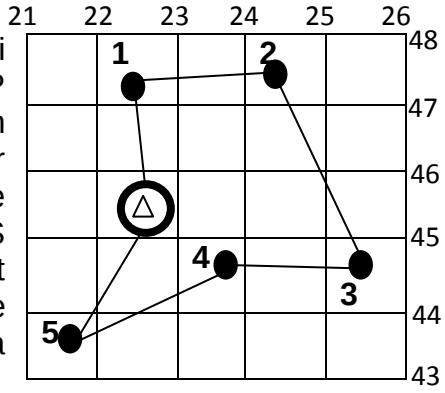
(ii) **Route Reccee.** Jaisa ki naam se malum parta hai ki yah abhyas ek sthan se dusare sthan ke beech nishchit path par reccee karwane se hai. Yeh path sadak, pahari, nala ithyadi kuchh bhi ho sakta hai.

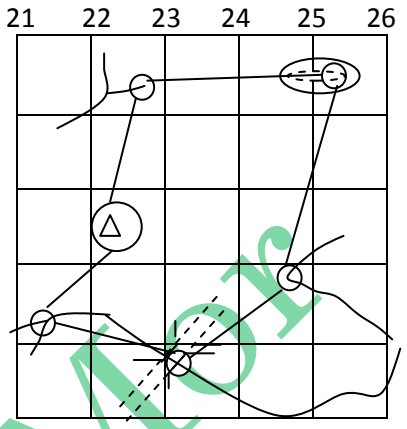
(b) **Parvarti Abhyas**

(i) **Score Event.** Yeh event individual aur syndicate mein ho sakti hai, Event Card par SP/RV aur pratyek point ka GR likha rahata hai. Is mein kisi bhi point par koi bhi route chunkar pahuncha ja sakta hai. Pratyek point ko uske kathinaie ke anusar ank diye jate hain. Ank bhi event card par likhe jate hain. Har control point par DS hota hai. Is stan par red flag laga di jati hai aur pas mein talc sheet lagakar control marker map reader ke hastaksher ke liye rakh dete hain. Is par point ka code likha rahata hai, jo map reader note kar leta hai.

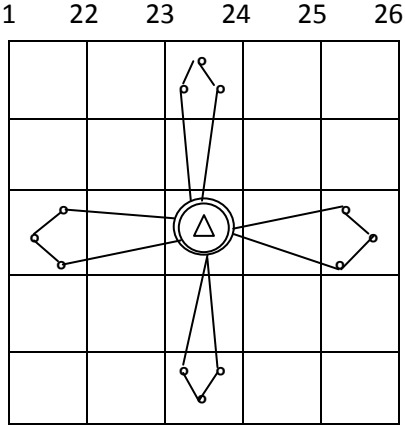


(ii) **Point to Point Event.** Yeh abhyas bhi individual ya syndicate mein kiya ja sakta hai. SP aur pahale control point ka GR event card par likh diya jata hai. Iske pashchat map reader point par pahunchkar uska code aur agale point ka GR apne event card par note karta hai. Yadi vahan par DS khara ho to usko report den,anyatha control point par apna Name, Number likhkar tatha signature karke agale point ko dhundhane ke liye chal deta hai.

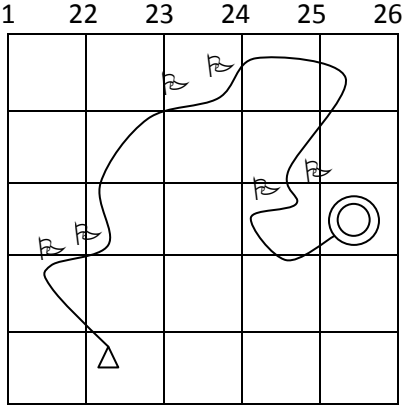




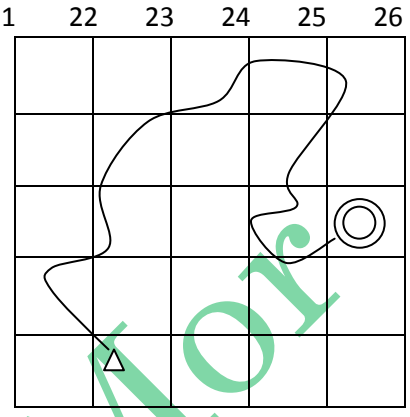
(iii) **Cross Country Event.** Is event ko bhi akele ya syndicate mein kiya jata hai, is event mein ek **Master map** taiyar kiya jata hai, jis par control point ko ek 5mm vayas ke vruth se mark kar diya jata hai. SP ek chhote aur RV dohare vruth se banaya jata hai.Vruth ya tribhuj ke bhetar bindu nahin lagate hain. Point vruth ya tribhuj ke beechhon beech hota hai aur uska varnan sath mein lagi hue **description slip** se kar diya jata hai taki map reader galti se kisi aur sath wale sthan par na pahunch jaye. Pratyek control point ke sath kram sankhya likh dete hain, kyonki is event mein point par kram se pahunchna anivarya hai. Kisi point ke chhut jane par ank kaat liya jate hain. Point par pahunchkar uska code aur GR apne card par note karte hain. Yadi control marker, DS ki kami ke karan rakha ho to us par apna Name, Number likhkar apna signature karte hain.



(iv) **Relay Event.** Relay shabd ka arth hai ek vasthu ki dusari vastu rakhna. Yeh bahut hi rochak event hai. Yeh kewal syndicate mein hi ho sakti hai. Parantu ek samay mein ek hi map reader ek route par jata hai. Ismein SP tatha RV ek hi sthan par hota hai. Jitne vyakti ek syndicate mein hote hain utane hi leg nishchit kiye jate hain. Ek vyakti kewal ek hi leg par jata hai. Vah leg mein do ya teen point par jane ke bad vapas aata hai aur apne hi syndicate ke dusare vyakti ko apna event card deta hai jo dusara leg pura karta hai. Isi tarah syndicate ke pure vyakti Relay ko pura karte hain.Jo syndicate sabhi leg ya point sabse pahale pura kar leta hai wahi vijayi ghoshit hota hai. Shesh sabhi niyam dusare Event jaise hi hain.



(v) **Line Event.** Yeh event syndicate mein hi kiya jata hai. Ismein ek Master map banaya jata hai, jis par RV dohare vruth se aur SP △ se mark karte hain. Master map mein bhinn-bhinn marg vbhina rangon se mark karte hain. Ismein ek tedhdhy-medhdhi line SP aur RV ko milati hue khinchi jati hai jis par pure syndicate ko chalna hota hai aur raste mein control point usi rang ki flag se milate hain. Is flag ke sthan ka GR nikalkar aur code apne event card par bhar dete hain aur aage usi line par chalna parta hai. Pointon ki katinaie, sankhya aadi aur ank dene ki vidhi dusare event jaise hi hai.



(vi) **Route Event**. Is khel ka ayojen karne ke liye route par chune ya feeta lagate hain. Pratiyogi mark kiye hue route par chalte hain. Route par peeli va hari jhandi lagayie jati hain. Peeli jhandi aane par pratiyogi uska GR nikalega tatha hari jhandi ke pas ek sighting stick (Indicator) lagi huie hoti hai, jo kisi object ko sanket karti hai. Pratiyogi us object ka GR nikalega. Is mein tatha dusari jhandi ke beech 100 meter se 150 meter tak duri ho sakti hai.

(vii) **Night Orienteering.** Ismein raat ko point to point, score va relay event ki tarah karyawahi ki jati hai. Pratyek point par laltern ko tin se dhakkhar rakha diya jata hai, taki anderi raat mein bhi point dikhaie de jaie aur laltern hawa se buje nahin. Ismein ank dene ki vidhi, event card tatha marching chart aur uska vivaran aadi sabhi dusare prakar ke abhyason ki tarah hain. Yeh abhyas aamtor par syndicate mein hota hai jismein sadasyon ki sankhya 2 se 5 tak hoti hai.

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PRAKSHEPAN
(ENLARGEMENT)

1. **PRASTAVANA.** Zameen ki sabhi details ko map par darshana sambhav nahin hai, iske sath-sath map kabhi-kabhi bahut purane ho jate hain, aur zameen par lagatar pariwartan hote rahate hain, dusara in mapon ki scale itni chhoti hoti hai ki map par sabhi detailen nahin dekhaie ja sakti, is kami ko pura karne ke liye sketch athwa Enlargement banaye jate hain.

2. **PARIBHASHA.** Nishchit vidhi ke anusar map ke kisi ek bhag ko uski puri detail sahit us map ki scale se bari scale mein kagaj ke upar kamiyon ko dur karke sketch ke roop mein banaya jata hai to us sketch ko Enlargement kahate hain.

3. **AAVASHYAKTA**

(a) Map ki kamiyon ko dur karne ke liye .
(b) Sand model banane ke liye.
(c) Map reading ke prashikshan evam abhyash ke liye.
(d) Bare commanderon ko yuddh ki yojana banane mein sahayak.
(e) Zamini ilake ki jaankari ke liye.
(f) Bare-bare Commanderon ko briefing ke liye.
(g) Sainikon aur hathiyaraon ki deployment ke liye.

4. **SAMAN**

(a)	Bari scale ka map.	(b)	Eye Sketch.	(c)	Romer Prakshepan.
(d)	Tracing Cloth.	(e)	Drawing Sheet.	(f)	Meter Scale.
(g)	Sketch Pen.	(h)	Poster Colour		

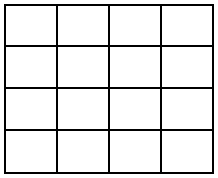
5. **VIDHIYAN**

(a) **Yantrik Vidhi (Mechanical Method)**

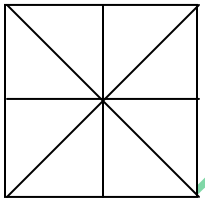
(i) Projection Method.
(ii) Pentagraph Method.
(iii) Photostat Method.
(iv) Episcope Method.
(v) Epidiascope Method.
(vi) Propotional Devider Method.

(b) **Ayantrik Vidhi (Non-Mechanical Method)**

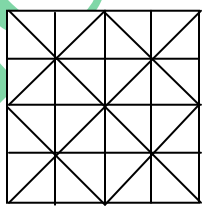
(i) **Varg Vidhi (Sauare Method).** Jis ilake ka prakshepan karna ho usko map par pencil se mark kar lete hain tatha usko chhote-chhote barabar vargon mein bant lete hain. Fir utne hi varg drawing sheet par banate hain tatha bad mein details bhar dete hain.



(ii) **Union Jack Vidhi (Union Jack Method).** Is vidhi mein survey map par dikhaye gaye vargon ke karnon ko jod dete hain. Pratyek varg mein jahan par donon karna milte hain vahan se ek rekha poorvi aur dusari uttari grid rekha ke samantar khinchte hain. Is prakar pratyek varg mein char upvarg ban jate hain aur in saral rekhaon ka aakar Union Jack ke saman dikhaie deta hai. Yadi upvargon mein bane trikon kaafi bare hain aur vitaran ko aasani se uttaar pana mushkil hai to pratyek upvarg ke dusare karnon ko bhi khinchkar upvarg ke trikonon ko aur bhi chhota kiya ja sakta hai. Theek isi prakar ki rekhayen drawing sheet par bhi khinchte hain.

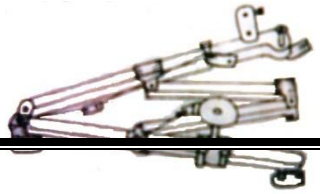


(iii) **Trikon Vidhi (Triangle Method).** Kuchh scaleon mein grid varg kuchh bare hote hain isliye unhain aage upvibhajit karna parta hai. Yadi Union Jack vidhi ke karnon ke trikon adhik bare-bare hon to jahan par ye chhote karn ek dusare ko katte hain, vahan se bhi ek-ek rekha poorvi aur uttari grid rekhaon ke samantar khinch dete hain. Is prakar map ke ek varg mein 16 varg ban jata hain, jinmein se pratyek ke beech mein eke k karna kheencha hota hai. Athaha map k eek varg mein 32 trikon ban jate hain.

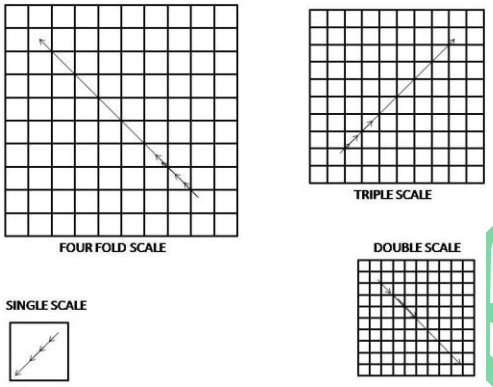


6. **PROPOTIONAL DEVIDER.** Propotional devider ek aisa yantra hai jiski madad se anupatik duriyan mapi jati hai. Pahali wali vyavastha ke sath yantra ke ek sire se map par maap liye jate hain aur inke maap yantra ke dusare sire se mark kar liye jate hain. Vibhajan set kar lene par pointon ko mool map se vistrit map Enlargemant par utara jata hai.

7. **PENTAGRAPH.** Pentagraph ek aisa khas kisam ka yantra hai, jo aam tor par map chhota aur bara karne ke kam aata hai. Iski tangon ko zarurat ke anusar vyavasthit kiya ja sakta hai. Tangon ko vayavasthit karke anya tangon ki madad se anupatik duri naap lete hain. Duri ko dimag mein rakhkar vivaranon ko sedhe bare kiye map par utaar diya jata hai, isse isthemal karne ke liye lagatar abhyas karna zaruri hota hai, contour rekhaon ko enlarge karne ke liye yeh ek bahut upyogi yantra hai.



8. **ENLARGEMENT ROMER.** Enlargement Romer bhi anya romeron ke saman vargon ki sahayata se banaya jata hai. Kintu vishesh vidhi se bane hone ke karan iska upyog kewal enlargement banane ke liye hi hota hai. Enlargement romer do prakar ke hote hain, jo ek hi scale ke survey map ke ilake ko kramash: do gune aur chaar gune enlargement mein badali karne ke liye banaye jate hai, dusare special hote hai jo do bhinn-bhinn scalon ke survey mapon ke ilakon ko kisi ek nishchit aur bari scale ke enlargement mein badali karne ke liye banaye jate hain.



9. **PRAKSHEPAN TAIYAR KARNA.** Prakshepan taiyar karne ke liye sabse pahale manchitra ke us ilake ko pencil se mark kar dete hain. Jiska prakshepan taiyar karna hai suvidhanusar prakshepan taiyar karne ki vidhiyon mein se ek chunen, aam tor par abhyas ke liye varg ya Union Jack vidhi ka prayog kiya jata hai. Manchitra par us ilake ko pencil se mark kar len. Sarvapratham bari scale ke anusar bari detailon ya mukhya detailon ko pahale aur chhoti-chhoti detailon ko bad mein dikhaya jata hai. Is prakar manchitra ki sahayata se prakshepan taiyar ho jata hai.

10. **DHYAN MEIN RAKHI JANE WALI BATEN**

(a) Prakshepan banate samay conventional signs ki disha wahi honi chahiye jo map par hai.
(b) Yadi East Grid ki rekhayon ka prakshepan hai to 4 figure sheershak mein sheet number tatha grid varg ka pura hawala den.
(c) Prakshepan ke bad grid varg par number likh dena chahiye.
(d) Contour rekhaon ki unchaie uske sath-sath likh deni chahiye.
(e) Teenon uttaron ki sthiti dikhayie jani chahiye.
(f) Sadakon ka reference km ke sath likhar shahar ka naam likh dena chahiye.
(g) Prakshepan banane ka varsh **North** ke neeche likha jaye.

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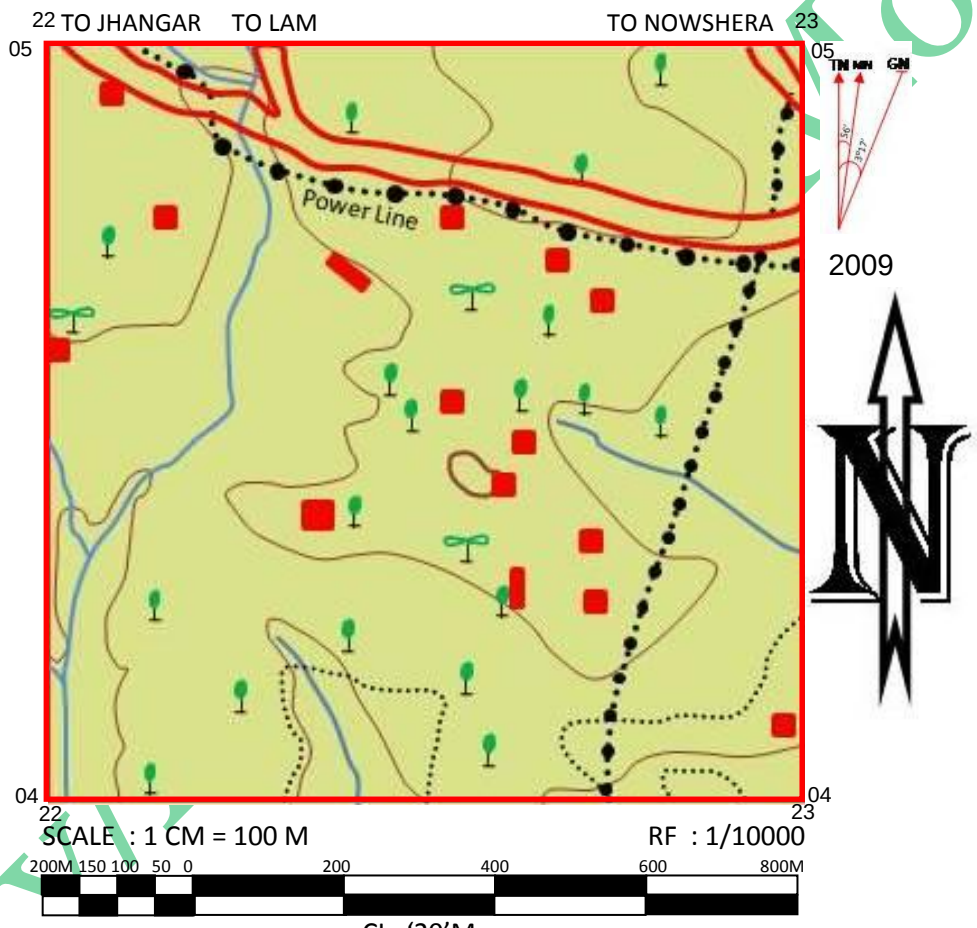
RESTRICTED

ENLARGEMENT

OF

AN AREA BOUNDED BY: E-22, N-04

REF MAP SHEET NO 43 K/4(M)



LEGEND

SER NO	OBJECT	SIGN

PLACE : GARHI

DATE : 26 JUN 2009

ARMY NO :
RANK :
NAME :
UNIT :

} INDEX NO

RESTRICTED

SAND MODEL

1. **ARTH.** Map sketch athva prakshepan ki sahayata se jab kisi zameeni ilake ki nishchit scale mein mitti aur ret ka prayog karke kisi surakshit sthan par hu-ba-hu aakriti banaie jati hai. Use Sand Model kahate hain.

2. **AAVASYAKTA**

(a) Sainikon ko scale samajne mein aasani.
(b) Sainik mahatav ke sthanon ko chunne mein madad.
(c) Relief ko samajne mein aasani.
(d) Mahatavpoorna Sainik yojanaon ko banane mein sahayak.
(e) Yudh yojanaon ko samjne mein sahayak.
(f) Topographical forms ka gyan.
(g) Scheme, TWET ke aadesh dene mein sahayak.
(h) Maidanon mein bhi pahari kkkshetra ka shiksha sambhav.

3. **GUN (MERITS)**

(a) Dhalaan achchhi prakar se samaj mein aa jati hai.
(b) Yojana kathinaieyon aur unka hal dhundhne mein sahayak.
(c) Bare-bare commander zameeni relief apne dimag mein bita lete hain.
(d) Dusare commander ko sankshep mein plan batane ke liye.
(e) New Information tatha Update milti hai.

4. **DOSH (DEMERITS)**

(a) Samay adhik lagta hai.
(b) Dhan kharch adhik.
(c) Shamata evam yogyata ki zarurat.
(d) Sand Model par nirbharta ki aadat par jati hai.

5. **SAMAN**

(a)	Gainti.	(b)	Belcha.	(c)	Lakri ka burada.
(d)	Sand Model Frame.	(e)	Dhaga.	(f)	Rang.
(g)	Tape (Red & White).	(h)	Sthanon ke naam.	(j)	Copper Wire.
(k)	Paper pins.	(l)	Nails.	(m)	Bans ki khapchchiyan.
(n)	Grid line ke liye ank ityadi.	(o)	Models (House, bridge, mandir etc).		

6. **SAND MODEL BANANE KI VIDHI**

(a) **Prarambhik karyawahi (Initial Stage).** Sabhi aavasyak samgiri ektra ho jane ke bad mark kiye kshetra ka ek Enlargement taiyar karte hain. Aavashyaktanusaar mark kiye hue sthan ki lambaie evam choaraie napkar uska grid varg bana lete hain. Yadi sand model prithvi tal se niche banana hai to adhik mitti nikalne ki aavashyakta hai.

(b) **Madya ki karyawahi (Middle Stage).** Sarvapratham khare aur pare fasale ki scale chunen, lakri ya gatte se uttar dikhayen, tatpashchat mahatvapoorna bari-bari detailon ko dikhaye. Chotiyan, sadaken, nadi, nale, gaon, talab ityadi banaye jate hain. Mukya sthanon ko theek sthan par nishchit sthanon se napkar banana chahiye. Dhalanon ki disha va nadi nalon ke bagav ko dhyan mein rakhen.

(c) **Antim karyawahi (Final Stage).** Sand model ko aakarshak banane ke liye prakritik aor banavati aakritiyon ko unke asali roop mein dikhaya jata hai. Jaise ki - barfile paharon ko chune ya safed paint se, Cliffon ko pakki ienton ya chikne mitti se, jungle ko vrikshon ki chhoti-chhoti tahniyon aor unchaieyon ko nishchit karke nirdharit naap ko lakri gadkar dikhate hain. Nadi, nale, jeel tatha talab ko neele burade se, ghas ya hariyali ko hare burade se tatha kheti ko peele rang ke burade se prakat karte hain. Pakki sadakon ko lal rang ke feeta se, kachchi sadakon ko safed rang ki feeta se, kachche raaston va pagdandiyon ko mote safed dhagon ke beech mein nishchit duri par kala rang karke darshya jata hai. Railway line ko lal rang ke tape se kuchh-kuchh antar par kala karke, telephone line ko peele paint se rangi khapchchiyon ke upar lal dhage bandkar darshaya jata hai. Bridge, house, mandir, mosque aadi ke liye lakri ya plastic ke bane banaie model prayog karte hain.

7. **DHYAN DENE YOGYA BATEN.** Scale sabdon mein tatha RF dwara frame ke neeche lakri ya gathe mein likhte hain. Uttar dayin oar tatha grid rekhaon ke ankon ko frame ke sath-sath likhen.

8. **BRIEFING SEQUENCE OF SAND MODEL**

(a) **General Info**

(i) Sand model ka kshetra grid ank ki sahayata se batayen.
(ii) Enlargment used.
(iii) Map Sheet number batayen.
(iv) Easting & Northing lines.
(v) North point.

(b) **Scale** HE and VI scale.

(c) **Relief**

(i) General slope of the ground.
(ii) Highest and lowest point.
(iii) Village and important places.

(d) **River**

(i) River.
(ii) Soarces of water.
(iii) Climate.
(iv) Population.
(v) Communication- Road, Train, Air, telephone.

☆☆☆☆☆

ANTAR - DRISHYATA
(INTER-VISIBILITY)

1. **PRASTAVANA.** Yuddhon, Schemeon, Training, Tactical Ex aur abhyason mein nishchit task ko poora karne ke liye zaruri hai, ki yuddh samagiri va hathiyaron ko upyukt sthan pa rakha jaye. Saath hi sainikon ko is dang se tenat kiya jaye jisse ve ek dusare ke saath achchha communication stapit kar sake. OP post ka sthan nishchit karte samay tatha camp lagte samay aise sthan ka chunav kiya jana chahie jisse dushman ki poori halchal evam taiyari dikhaie den tatha apne troops se achchha communication va talmel rakha ja sake.

2. **ARTH.** Intervisibility ka arth do sthanon ka ek dusare se dikhaie dena hota hai jab ham ek sthan par khare hokar dusare sthan ke kisi object ko dekhte hain to zaruri hai ki object se pahala sthan bhi dikhaie dega. Is prakar yeh donon sthan ek dusare se Inter-visibile honge.

3. **PARIBHASHA.** Do sthanon ke ek dusare se nazari milap ko Inter-Visibility kahate hain. Nazari milap nahin hone par ve sthan Invisible honge.

4. **AAVASHYAKTA.** Visibility ki zarurat nimnalikhit mokon par parti hai:-
   - (a) Apna communication ya milap rakhane ke liye.
   - (b) Charon oar ke ilake mein shatru par nazar rakhne ke liye.
   - (c) Firer plan banane ke liye.
   - (d) Training, exercise aur abhyason ko safal banane ke liye.
   - (e) Aakraman aur defence mein hathiyaron ki nishchit karne ke liye.
   - (f) Janheen bhumi ko control mein rakhne ke liye.
   - (g) Pahariyon ki pade aur khade fasale janne ke liye.

5. **INTER-VISIBILITY MEIN SAHAYAK TATVA**
   - (a) Yadi do sthan concave slope par hain.
   - (b) Yadi do sthan aamne saamne ke do knole par hain.
   - (c) Yadi sthan Saddle ke do kinaron par hain.
   - (d) Yadi sthan Re-entrant ke do kinaron par hain.
   - (e) Yadi sthan maidan mein hai.
   - (f) Yadi donon sthan niyamit dhalanon par hain.
   - (g) Yadi sthan ghati ke kinaron par hain.

6. **INTER-VISIBILITY MEIN BADHAK TATVA**
   - (a) Donon nishanon ke beech mein jungle ya bare-bare virikshon ka hona.
   - (b) Donon nishanon ke beech mein unchi building ya tekri ka hona.
   - (c) Donon nishanon ke beech mein aesi unchaie ka aa jana jise kisi map par uski nishchit contour rekhaon ki madad se dikhana sambhav na ho.

7. **INTER-VISIBILITY GYAT KARNE KI VIDHIYAN**

   (a) **Parikshan vidhi** (i) Nirikshan se. (ii) Janch se.

   (b) **Drawing vidhi**
   - Section Drawing (i) Complete Section drawing. (ii) Sanshipt. (iii) Section drawing.
   - Hasty Drawing (i) Paper Drawing. (ii) Graph Paper Drawing.

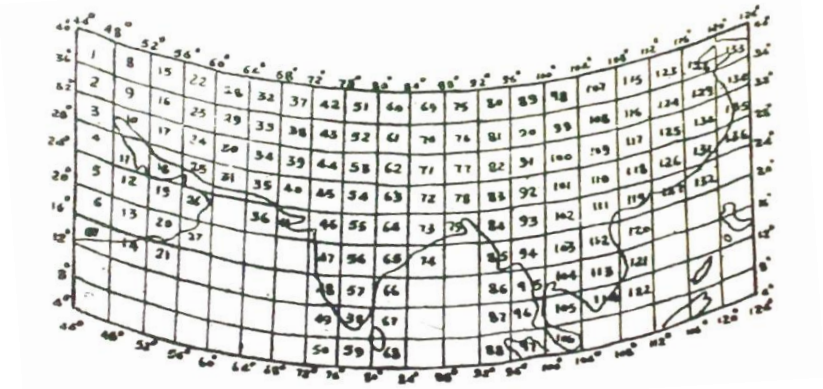
   (c) **Ghanitiya vidhi** (i) Gradient ki tulna. (ii) Ikaie dwara. (iii) Samanupat dwara.

DAKSHIN POORV ASIA SUCHIKRAM

(SOUTH EAST ASIAN SERIES)

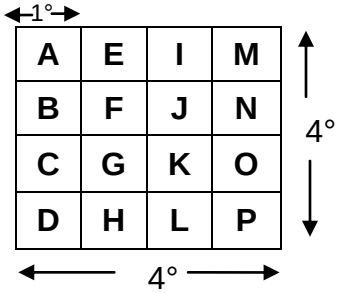
1. **PRASTAVANA.** 1905 mein Survey of India ne Bharat aur iske padosi deshon ki ek nae dang se bant ki, iska naam Survey Index to Map Sheet rakha. Bad mein is suchi kram ka naam India and adjacent Countries Series pada. Is vidhi mein dakshin poorva Asia ke 4° uttari akshanshon se 40° uttari akshansh tatha 44° poorvi deshantar se 124° poorvi deshantar tak ke ilake kao ghera gaya hai. Ismein Bharat, Pakistan, Myanmar, Srilanka, Afganistan, Nepal, Bhutan, Bangladesh, Malaysia, Saudi Arabia tatha China ka kuchh bhag samil hai. Ismein 1:50000 se 1: 25000 tak ke scale ke map banaye gaye hain.

2. **MILLION SHEET.** 4° uttari akshansh se 40° uttari akshnsh tak aur 44°poorvi deshantar se 124° poorvi deshantar ke ilake ko 4° X 4° ke barabar bhagon mein banta gaya hai. Jisse kul 180 sheeten banti hai. Lekin 44 sheeten jo pani wale ilake mein banti hain, inko chhodkar shesh 136 sheeton ko hi number diye gaye hain. 4° X 4° ki pratyek sheet ko million sheet kahate hain. Scale 1:1000000 ya 1" = 16 mile (RF 1: 1013760) mein ye sheet banaie gaie hai. Inmein pratyek million sheet 276 X 276 mile ya 441.6 X 441.6 Km bhu-kshetra ki gherti hai. Bhu-madhya rekha se uttar ki oar badne par in sheeton ka bhu-kshetra kam ho jata hai.

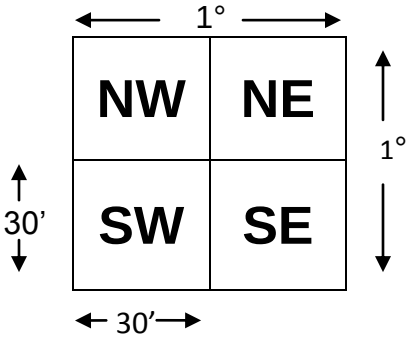


3. **4° X 4° SHEET KE NUMBER GYAT KARNA.** Kisi bhi 4° X 4° sheet ka uppar ya neeche number nikhalna to aasan hai kewal ek ghatakar ya badakar gyat kar sakte hain. Parantu danye ya banye baju ki pratyek sheet ka number chitra dekhe bagair malum karna katin hai. Dhyan poorvak dekhane se yeh gyat hota hai ki sheet number 8 se 20 tak sheeton ke banye ke number 7 ghatakar va danye ke number 7 jodkar gyat kar sakte hain. 51 se 65 va 89 se 105 tak sheeton ke banye ke number 9 ghatakar va danye ke number 9 jodkar gyat kar sakte hain.

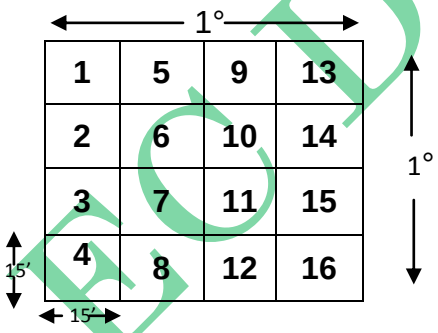
4. **1° X 1° KI SHEETEN.** 4° X 4° ke ek varg ko 16 barabar bhagon mein banta gaya hai jinhein English letters A se P tak diye gaye hain. 1° X 1° ka yeh varg samanyatya 69 X 69 mile ya 110.4 X 110.4km ke bhu-kshetra ko prakat karta hai. Metric mapon mein iski scale 1: 2,50,000 tatha inch map sheeton mein 1: 2,53,440 hoti hai.



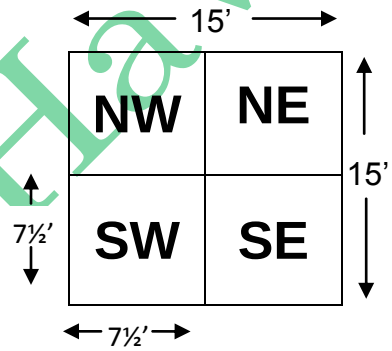
5. **½° X ½° KI SHEETEN.** 1° X 1° ki sheet ko char barabar bhagon mein banta gaya hai, inko NE, NW, SE, SW naam diye gaye hai. Ismein 30' X 30' ka pratyek varg banta hai jo 34.5 X 34.5 mile ya 55.2 X 55.2 Km ke bhu-kshetra ko gherta hai. Iska scale ½" = 1 mile (1:126720) ya 1/100000 hota hai. Is prakar SEAS mein 30' X 30' ki kul sheeten 8704 banti hai.

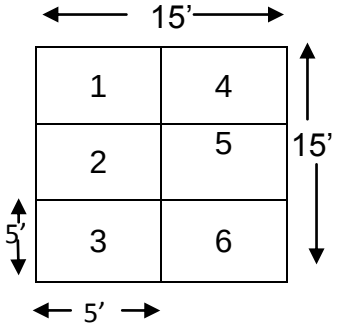


6. **15' X 15' KI SHEETEN.** 1° X 1° sheet ko punah 4 X 4 = 16 barabar bhagon mein bantkar 1 se 16 tak number diye gaye hain. Is prakar 15' X 15' sheet 27.6 X 27.6 Km ko prakat karti hai, inki scale 1' = 1 mile (1/63360) ya 2cm = 1 Km ya 1/50000 ki hoti hai. Is prakar SEAS mein 15' X 15' ki kul 34816 sheeten banti hai.



7. **7½' X 7½' YA 7½' X 5' KI SHEETEN.** 15' X 15' ki sheet ki do prakar se bant hoti hai. Pahali mein 7½' X 7½' ko char bhagon mein banta gaya hai jinhein NE, SE, NW, SW se darshaya gaya hai tatha 7½' X 5' ko 6 bhagon mein banta gaya, jinhein 1 se 6 tak number diye gaye. Ye sheeten 13.8 X 13.9 km tatha 13.8 X 9.2 km ke zameeni kshetra ko prakat karti hai. Inka scale 4cm= 1km, RF 1/25000 hota hai.





5'

★★★★★

MAP MARKING AND TAPING

1. **PRASTAVANA.** Kaie karanvsh zameen ki halat badalti rahati hai isliye samay-samay par map ko revise kiya jata hai kyon ki zameen ki badalti huie halat operation par kaafi prabhav dalti hai. Yadhi map up to date hai to operation ki yojana sahi dhang se ban sakti hai. Yadhi yojana sahi hai to operation mein kamyabi mil sakti hai. Operation se pahale uchcha formation mein Ops Room mein operation ki planning, map aur sand model ki sahayata se ban sakti hai. Lower formation tatha unit ko jimmedari ka kshetra bant diya jata hai. Area of Responsibility milne ke badh apne kshetra mein troops aur Weapon Deployment Adm Installation Points ko map par talk sheet lagakar mark ya tape kar dete hain. Sath hi apne padosi unit aur dushman ki sthiti ko bhi mark kar lete hain isliye har sainik ko map marking aur taping ke bare mein gyan hona zaruri hai.

2. **STHITI MAP.** Operation ke dhuran laraie ke halat hamesha badalte rahate hain isliye apni tatha shatru ki sena ke bare mein up to date jankari rakhana bahut hi zaruri hai. Har sthar ke formation HQ mein uski units aur shatru ki sthiti dikhane ke liye Sit Map taiyar kiya jata hai, jisse yuddh ki pragati, shatru ki karyavahi ka anuman lagane mein tatha commander ko yojana banane mein kaafi sahayata milti hai.

ARTH. Yuddh ke samay apni tatha shatru ki sena ki sthiti ke bare mein poorna jankari ke liye jo map taiyar kiya jata hai use **Sthiti Map** (Situation Map) kahate hain jo ki har aadhe ghante mein badalta rahata hai.

3. **TOPOGRAPHICAL MAP.** Yeh map dharataliya parivartanon ko dikhane ke liye taiyar kiya jata hai. Udaharan ke liye yadhi kuchh badale hue Topo Forms map par nahin hai to ise map par dikhaya ja sakta hai. Isko banane ki jimmedari survey walon ki hoti hai. Topographical changes jaise relief va communication ityadi.

4. **GOING MAP.** Yeh map topographical map ki kisham ka hota hai ishe aamtor per Survey service wale GS Staff ke nirdesh se tayar karte hai. Ismein A aur B Vehicle ke Route ke liyae alag alag rangon ka prayog kiya jata hai. Jyada gahra rang kathin Going ko jahir karta hai .

5. **DEFENCE MAP.** Jis ilake mein ladaie ke sargarmiyan kam ho jati hai tatha static halat ho jati hai to shatru ke gun position, defence, Anti tank Detaches, Individual Sites aur Defence Work sidhe map per Mark kiyae jate hai kyunki aam tor par ye badli nahin hote. Iske jimmedari GS (INT) aur survey walon ki hai. Is map ki original copy Div HQ star par Int Staff aur APIS (Air Photo Interpretation Section) walon ke pass hoti hai. Isko Corps HQ star par Field Survey wale banate hain.

6. **PATROLLING MAP.** Aamtor par patrolling map ki suchna Operation Map par dikhaie jati hai, lekin jab patrolling activities jyada ho jati hain to ek alag patrolling map banaya jata hai.

7. **SITUATION MAP KE PRAKAR**

(a) **Operation Map.** Is map par apne shatru ki sena ke bare mein kaafi detail mein information record ki jati hai taki Commander isse dekhkar hone wali laraie ke liye sheegra yojana bana saken. Is par kewal pakki, sahi aur aavashyak suchnayen darj ki jaye. Operation Map taiyar karne ki jimmedari is prakar hai:-

(i) Shatru ke bare mein jankari- GS Branch (Int).

(ii) Apni sena ke bare mein suchana- GS Branch (Ops).

(b) **Intelligence Map.** Is map mein shatru ke bare mein adhik se adhik va up to date suchnayen di jati hai. Apni sena ke bare mein suchana ya to bilcul nahi di jati ya outline mein di jati hai.Is map par suchnayen darj karnae ki jimmevari Int Staff ki hoti hai.

(c) **Information Room Map.** Yeh map bhi operation map ki hi copy hoti hai aur bahar se aaye hue Commanderon ke liye ise suchanalay mein rakha jata hai. Taaki ve wahan se hi jankari prapt kar saken aur operation staff ko koie rukavat aaye. Isko maintain karne ki jimmevari Int staff ki hoti hai.

(d) **Commander's Map.** Yah bhi operation Map ki hi copy hoti hai. Parantu portable hota hai. Yah hamesha commander ke paas hota hai. Yah commander ko laraie ki yojana banane va situation ko samajane ke liye hota hai. Isko bhi Int staff taiyar karta hai. Infantry Battalion star par aamtor par Ops Map par hi Patrolling Map banaya jata hain. Jahan tak ho sake yah OP map par hi dikhana chahiye, taki shatru ki sthiti ko madhya nazar rakhte hue, patrolling ki ja sake.

8. **ORBAT (Order of Battle).** Situation map par apna tatha shatru ka Orbat alag-alag hota hai. Isse commander samaj sakta hai ki hamare troops ke mukabale shatru ki koun si unit hai. Apne Orbat ko neele rang se tatha dushman ke orbat ko lal rang se taiyar kiya jata hai.

(a) Agar boundary north/south direction mein hai to jis aor jiski sena hai usi aor orbat lagayen.
(b) Agar boundary east/west hai to apni orbat bayen aur dushman ki orbat dahine aor lagayen.
(c) Orbat sheet se tatha unit/fmn ka Deployment tape se dikhaya ja sakta hai.

9. **MAP MARK KARNE KI TARIKA**

(a) Map par talc cover chadakar, chinagraph ya glass marking pencil se mark karna chahiye. Blue va Red kramansh: apni tatha shatru ki sthiti ke liye prayog karen.
(b) Mil Symbols ka theek prayog karen jo ki pamphlet Staff Duties in Field Services Appx 'C' Mil Symbols 1991 mein diye gaye hain.
(c) Pamphlet mein diye gaye chinhon ke atirikt yadi koie Mil Symbol prayog karte hain to map ke neeche legend banakar dikhayen.
(d) Jo Fmn/Unit dushman ki dhamki ya samana karne ke liye taiyar hain ya Tactically Deployed hain, use dushman ki taraf dikhayen.
(e) Reserve unit jise task mila hai use bhi dushman ki dhamki jis taraf se aane ki sambhavana hai us taraf dikhayen.
(f) Jo unit kaafi peeche hain aur jisko koie task nahin diya gaya ho, unko north disha mein dikhayen.
(g) All round defence ke liye lagaye gaye Unit/Fmn ke size symbol us tara dikhayen jahan se dushman ka jyada khatra hai.
(h) Sabhi Adm Installation jaise FOL, Supply, Amn, Water Point aadi ke symbol north disha mein dikhayen.

10. **MARK KARTE SAMAY DHYAN MEIN RAKHANE YOGYA BATEN**

(a) Talc sheet ke neeche ki aor Grid Intersecting line teen sthan par grid line ke number ke sath mark karen taki talc sheet hil jane par punah: apni par la saken.
(b) Permanent Installation, boundaries, ref points, grid number aadi talc ke neeche se mark karen, taki galti se bar-bar na miten. Is prakar ki marking pahale talc ke uppar karen, fir neeche se mark karen, fir uppar se marking mita den aur talc laga den. Kabhi-kabhi do talc sheet ka prayog karte hain. Ek permanent marking ke liye, dusara badalte details ke liye.
(c) Jahan tak ho sake letters neeche se aur map ki lambaie ke samanantar likhen.
(d) Uchit rang aur abbreviation ka prayog karen.
(e) Talc saaf karne ke liye Mythylated spirit, Metal polish ya cigarate ki rakh ka prayog karen.
(f) Chinagraph pencil gyada nukili na banayen.
(g) Safaie ke sath halka aur barik marking karen.
(h) Mil Symbol theek se banayen.
(j) Gaon va Sahar ka naam map ke uppar likh dena chahiye va sadak aadi mark kar dene chahiye.
(k) Control points ko mark karne ke bad tixo tape se chipka dena chahiye.

11. **RANGON KA PRAYOG**

(a) **Blue** - Apne va mitra deshon ke liye.
(b) **Red** - Dushman aur uske mitra deshon ke Tps va Installations ke liye.
(c) **Green** - Dushman aur apne mitra deshon dwara banaye gaye Mine obstacles ke liye.
(d) **Yellow** - Dushman aur apni sena dwara prayog kiye gaye Gas ya Chemical Warfare ke liye.
(e) **Black/Brown** - Yeh spare rang hain isse Boundaries tatha topographical details dikhate hain.

HAWAI PHOTO ANUWADH

(AIR PHOTO INTERPRETATION)

1. **PRASTAVANA.** Sene ki drishti mein Air Photo Reading ka udeshya hai map per di hui jankari ko padhaya jaye. Photo reading jo map reading ki tarha hi hai, buniyadi fougi sikhalai ka bhag hai jiski sabhi adhikari evam NCO ko bhi jankari honi chahiye. Ismein training aur abhyash ke pashchat object ko seedha pahachana jata hai. Map mein conventional signs ko pahachanana hota hai. Lekin photo reading mein pahachane hue object ko pahachanana hota hai aur Vertical Photograph mein bina pahachane hue object ki aakritiyon ko pahachanana hota hai. Hawai photo khinchane ka kaam sarvapratham 18-19 veen shatapti mein Paris mein ek survey karne wale ne shuru kiya. Bharat mein hawai photography sarvapratham 1927 mein ki gayie.

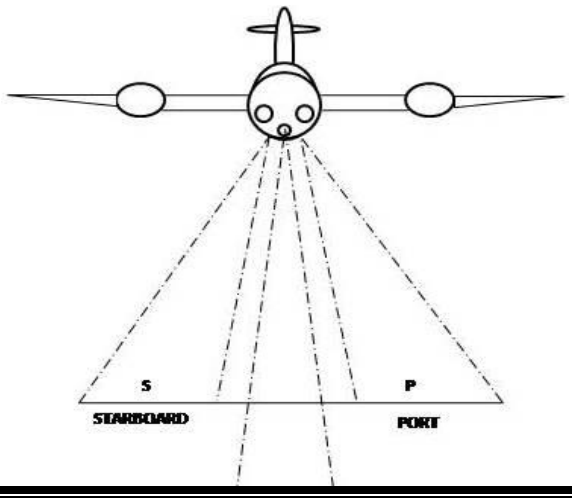
2. **HAWAI PHOTO KE PRAKAR.** Hawai photography teen prakar ki hoti hai :-

(a) **Tirchhe Photograph (Oblique Photograph).** Trichhe Hawai Photography vah hoti hai jo Horizontal aur Vertical ke beech camera ke prakashiya aksh se khinchi jati hai. Is tarah ki photography do tarah ki hoti hai.

(i) Kam Trichhe Photograph - Vah hoti hai jismein Horizontal samil hota hai.

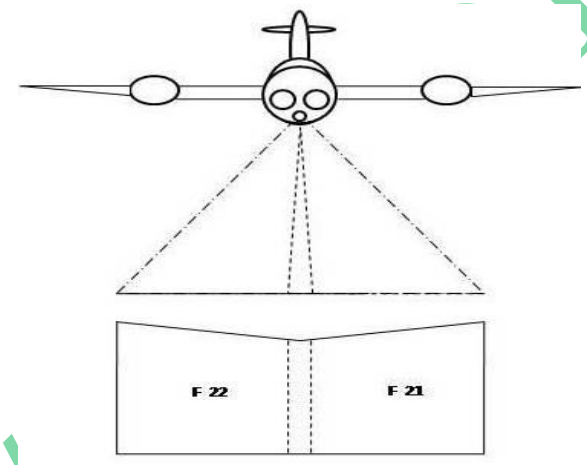
(ii) Aadhik Trichhe Photograph- Vah hoti hai jismein Horizontal samil nahin hota.

- **Fayde**
  - Yah jana pahachana chitra prastut karti hai.
  - Yah kaafi bade kshetra ko cover karti hai.
  - Badalon se ghire kshetra mein photography pana sambhav hai.
- **Nuksaan**
  - Alag-alag sankhya mein adrishya bhumiyan(Under features).
  - Map se tulna karna aasan nahin.
  - Isse scale mein banana aasan nahin hai. Yeh pechhe ki bhumi se aage ki bhumi tak badalti rahati hai.
  - Ismein maap karna apekshakrit kathin hota hai.



(b) **Vertical Photograph.** Vertical Photography vah hoti hai jismein photo camera ke aksh se li jati hai joki zameen ki satah par lamb roop mein hota hai. Is tarah ki photo mein zameen ki vishestayen seedhe sapat roop mein dikhaie deti hai.

- **Fayde**
  - Koie Dead ground nahin hota.
  - Spasht roop se dikhne ke karan map se bari aasani se tulna ki ja sakti hai.
  - Scale karna aasan hai.
  - Aasani se maapa ja sakta hai.
  - Banana aasan hai.
  - Trivimitikaran ke liye aasan.
- **Nuksaan**
  - Anjana sa chitra prastut karti hai.
  - Seemit kshetra ki photography hoti hai.



(c) **Vishesh Photograph (Special Photograph)**

(i)	Cinema Photograph.	(ii)	Night Strike Photograph.
(iii)	Radarscope Photograph.	(iv)	Colour Photograph.
(v)	Infrared Photograph.	(vi)	Sonostrip Photograph.

3. **HAWAI PHOTOGRAPH KE UPYOG**

(a) Dharataliya aur pratyek ki suraksha sambandhi jo sena mukhyalay se lekar Inf Pl tak yojana banane mein kaam aati hai. Dharataliya suchnayen vistrit roop se prapt hoti hain jaise dushman ke padav ki sthiti vibhinna prakar ke morche evam marg tank-tod rukavaten, pill box, hathiyaron ki kism aur caliber aadi.
(b) Topchi isko counter battary ke liye prayog karte hain.
(c) Air observation post officer photo se gola dalne ki disha batane ke liye prayog karta hai.
(d) Suchanayen prapt karne ke liye jahan dharataliya suchanayen na hon aur toliyon ko vivaran batane ke liye IO ko air photo madad deta hai.
(e) IO ko yuddh bandiyon (POW) ko interrogation mein kaafi madad milti hai.
(f) Cavalry ko tank ke ilake ke bare mein suchana milti hai.
(g) Prakritik rukavaton ke vishai mein suchana milti hai.

4. **HAWAI PHOTO KI VISHESTAYEN.** Hawai photo ki pramukh vishestayen nimana hai -

(a) Navintam suchana. (b) Gatisheel Suchana.
(c) Anveshan. (d) Suraksha.
(e) Satya evam vishvasania suchana.

5. **MAP VA HAWAI PHOTO KI TULNA (Difference between Map & Air Photo).**

Map	Air Photo
(a) **Handling-** Kishi bhi scale ke Mapon ka handling karna ashan hai.	(a) Ek nakshe ko covar karne ke liye bahut se print ke avashyakta hogi. Isliye nakshe ki tulna mein handling karna mushkil hai.
(b) **Appreciation-** Naksha ko ashani se padha ja sakta hai.	(b) Vistrit adhyayan ke liye adhik labhdayak hai lekin isko padhna nakshe se kathin hai.
(c) **Orientation-** Nakshe per utar malum kiya ja sakta hai aur naksha par co-ordinate va jagha ka nam bhi likha hota hai.	(c) Utar gyat karne ke liye local jankari ki avashyakta hoti hai. Co-ordinates ya jagha ka nam nahi diya hota.
(d) **Heights-** Contous rekhayen va spot height diya hote hain lekin feature ki tulnatmak unchaie ka andaja naksha dekh ker nahin lagaya ja sakta hai.	(d) Zameeni feature ki tulna karke height aasani se dekhi ja sakti hai lakin contour aur spot height na hone se kisi feature ki unchaie malum karna mushkil hai.
(e) **Date-** Aamtor par map par date ya varsh purana hota hai aur latest details nahin hoti.	(e) Ismein zameeni detail ki photography ki date hoti hai.
(f) **Detail-** Naksha ka scale kitna hi bara kyun na ho phir bhi zameen ke sabhi detail nahin bhare ja sakte, varna naksha padhna muskil ho jayaga.	(f) Naksha se scale bara hota hai aur photo par sabhi zameeni detail diye honge.
(g) Nakshe par conventional signs aasani se pahachane to ja sakte hai, lekin unka naap tol theek nahin hota.	(g) Har ek object ka naap tol theek diya hota hai.
(h) **Heighting -** Ground se object ki unchaie malum karna mushkil hai.	(h) Ground se object ki unchaie malum ki ja sakti hai.
(j) **Mosami Parivartan-** Ye nakshe par nahin hote.	(j) Ye photo par aasani se dekhe ja sakte hain.

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GLOBAL POSITIONING SYSTEM

1. **PRASTAVANA.** Manushya mein hamesha apne aas-pas ke mahatvapoorna sthanon ke bare mein jankari prapt karne ki pravriti rahi hai. Map ki madad se nevigation karne wale vayakti ke samne sada yeh samasya bani rahati hai ki map par uski sthiti kahan par hai. Gyat sthan se agyat sthan par jana bhi ek bahut bari samasya hoti hai. Uprokt samasyaon ko suljane mein GPS pranali bahut kaargar sidhd huie hai.

2. **ARTH EVAM SANSHIPT ITHIHAS.** GPS ka poorna arth Global Positioning System hai. Vartaman samay mein is pranali mein 24 satellite hain, jo ki pritvi se lagbag 19000 Km se adhik unchaie ki kaksha mein sthit hai, aur lagbag 11200 Km/h ki gati se pritvi ke charon aor chakkar laga rahein hain.

3. 1960 va 1970 ke dashak mein USA ne purav soviat sangh se sainya badat prapat karnae ke liye is parnali ki karya yojana banai. Is parnali se sambandhit pratham upagrah sun 1978 mein tatha choubishvan(24^{th}) upagrah sun 1994 mein choda gaya. Sun 1980 ke dashak mein jab purab soviet sangh ne galti se Dakshin Korea ke ek asainik viman ko maar giraya tab is prakar ki durghatnaon ko rokane ke liye United States of America (USA) ne is pranali ke asainik kshetra mein prayog ke anumati de di.

4. Ish prakar ke ek sanshipt pranali Russia dwara bhi apnaie ja rahi hai. Europeya desh bhi isi prakar ki ek pranali shuru karne ki prayas kar rahe hain.

5. **AAVSYAKTA TATHA UPAYOG**

(a) Apni sthiti ka nirdharan karne mein sahayak.

(b) Vibhinna reference pranaliyon ko chunne ki suvidha.

(c) Ek sthan se dusare sthan tak jane mein sahayak.

(d) Teenon prakar ke navigation (Thal, Jal va Nabh) mein aasani.

(e) Survey va manchitra nirman mein krantikari parivartan.

(f) Kam karch, kam manav shakti tatha kam samay mein pramanik manchitron ka nirman.

(g) Tracking mein iske upayog se aapatkalin sevaon ka karya aasan.

(h) Antarashtriya samay pramanikaran pratyek GPS upagrah mein sthit parmanu ghariyan (Atomic Clock) tatha GPS receiver mein sthit iski samtulya ghariyaon se sambhav hua hai.

(j) Sena ke teenon angon tatha, ardh sainik balon ki sthiti nirdharan, tracking aur navigation sambandit aavasyaktaon ki poorti mein sahayak.

(k) Vigyanik, khilari, kissan, sainik, poilet, surveyer, haiker, navik, police va agnishamak dasta aadi ki aavasyakta poorti mein sahayak.

(l) United States of America dwara aadhunik shastra pranali mein iska vyapak va prabhavi upayog.

6. **VISHESTAYEN**

(a) Yeh 24 ghante suchanayen deta hai.

(b) Yeh sainya tatha asainya donon kshetraon mein upayogi hai.

(c) Iska prasanik niyantaran United States of America ke Department of Defence (DOD) dwara kiya jata hai.

(d) Vibhinna aavashyaktaon tatha upyogitaon ke aadhar par GPS receiver kharidne va chunne ki suvidha.

(e) Ab tak ki sabhi pranaliyon mein sarvottam.

(f) Kuchh receiveron mein kaie bhashaon mein suchanayen prapt karne ki suvidha.

(g) Aam vayakti kam samay mein iske sanchalan mein nipunata hasil kar sakta hai.

(h) Halka hone ke karan lane va le jane mein suvidhajanak.

7. **KAMIYAN**

(a) Yeh America ke Department of Defence dwara sanchalit hai.

(b) Ismein selective availability ke tahat truti paida ki ja sakti hai.

(c) Saamanya receiver 100 Mtr se 150 Mtr tak ki truti darshate hain.

(d) Sabhi receiveron mein Bharatiya grid pranali nahin hai.

(e) Iske liye khuli jagah ki aavasyakta hoti hai.

(f) Iska upayog gahari khaieyon, kamaron ke antar tatha unchi imaraton ke paas theek prakar se nahin kiya ja sakta.

(g) Vishvasaniya aankadon ki prapti ke liye kam se kam teen upagrahon ki aavasyakta hoti hai.

(h) Battery ki khapat adhik.

(j) Rakhrakhav evam marammat ki suvidha har jagah upalabdh nahin.

(k) Laraie ke douran iske aankadon par poona roop se vishwas nahin kiya ja sakta.

8. **VISHVASANIYATA.** GPS mein SPS Receiver jo ki samanya prayog ke liye hai, uski satyata kewal 25 meter tak hai. Selective Availability (SA) randem error hai, isko SPS Code mein pravesh karane ke bad GPS ki error badal jati hai joki 100 meter tak badh jati hai.

9. Department of Defence aur Civil GPS mein satyata Selective Availability (SA) ke dwara samanya prachalan mein prabhavit hoti hai. GPS ke dwara vishwasyukt prachalan evam sthiti ke bare mein suchana prapt hoti hai.

10. **GPS KAISE KARYA KARTA HAI?** Pratyek GPS sattelite apni sthiti, samay evam unchaie ki suchana utsarjit karta hai. GPS receiver suchana ko grahan karta hai, GPS upagrah dwara suchana utsarjit aur receiver dwara signal grahan karne ke samay aur duri ko mapta

hai. Is kriya ko Ranging kahate hain. Receiver kam se kam teen upagrahon ki duri ko pritvi ki satah par nirdharit karne ke bad hi nimna chitra ke anusar karya karta hai :-

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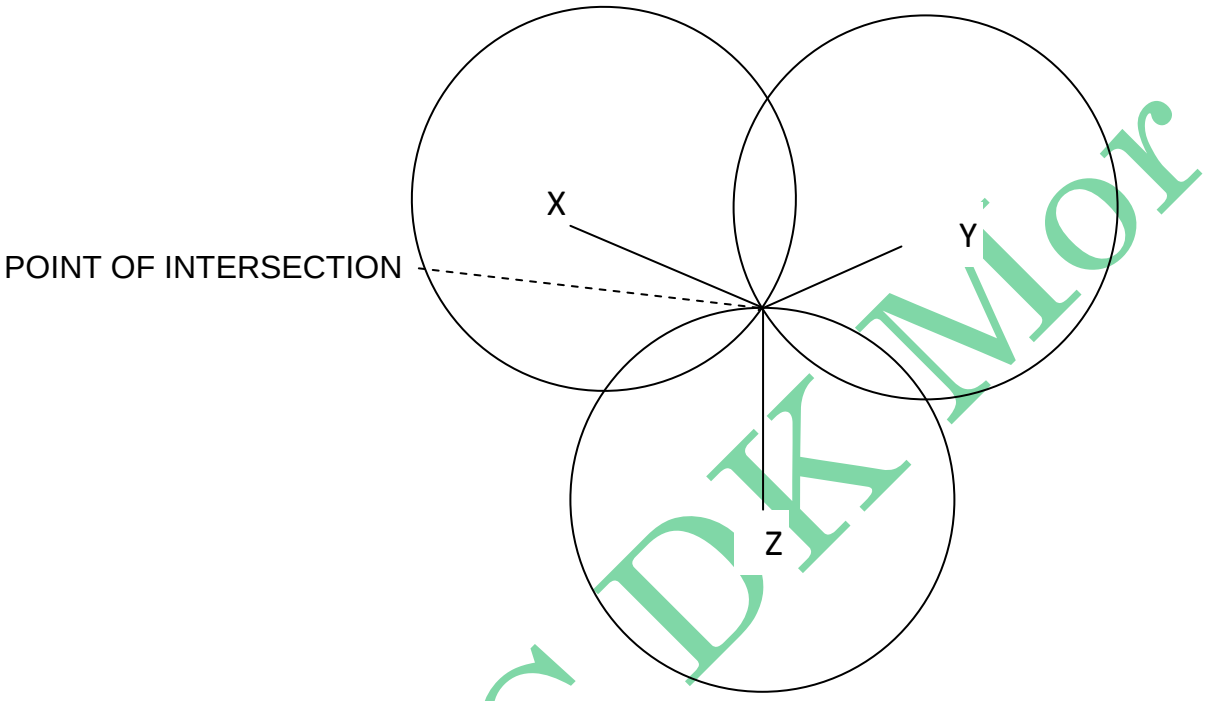

11. Chitra mein (X,Y,Z) observer ki sthiti (Duri) gatisheel upagrah se dikhate hain. Jahan par teen vrit ek dusare ko katthe hain use observer sthiti kahate hain, jiski sahayata se antriksh mein apni sthiti nirdharit kar sakte hain.

12. Pratyek upagrah do prakar ki suchana utsargit karta hai, jinhein almanak aur afimeris kahate hain. Almanak data sattelite ki sthiti ki aur pratyek sattelite ki sakti ki ek samanya suchana hai. In sattiliton ke samuh dwara afimeris sattelite position ki suchana ko theek-theek nirdharit karta hai, jise ranging ke liye prayog kiya jata hai. Pratyek sattelite almanak aur afimeris data ko utsarjit karti hai, jisse ki GPS ka receiver turant sattelite ki position ko nirdharit karta hai.

13. GPS ka prayog sanya gatisheel pranali, samanya kshetra evam vyavasayik kshetra mein kiya jata hai. Isliye do code nirdharit kiye gaye hain. Military karyavahi ke liye PPL Code tatha anya kshetron ke liye SPS Code nirdharit kiya gaya hai.

☆☆☆☆☆

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