श्री अमोलक जैन विद्या प्रसारक मंडळाचे

श्रीमती शां. कां. गांधी कला, अमोलक विज्ञान व प. हि. गांधी वाणिज्य,

महाविद्यालय कडा,

ता. आष्टी जिल्हा बीड ४१४२०२

भूगोल विभाग

प्रा. उध्दव एकनाथ चव्हाण

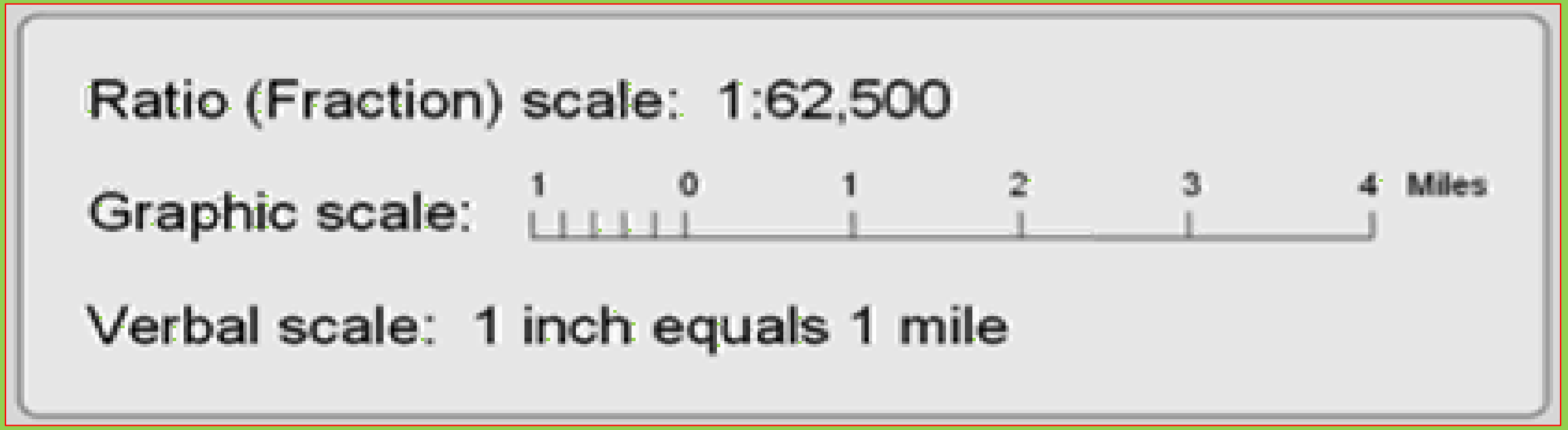
प्रात्यक्षिक भूगोल-V

Map scale

- Map **scale** refers to the relationship (or ratio) between distance on a map and the corresponding distance on the ground.
- For example, on a 1:100000 **scale** map, 1cm on the map equals 1km on the ground. ...
- For example, a 1:100000 **scale** map is considered a larger **scale** than a 1:250000 **scale** map.

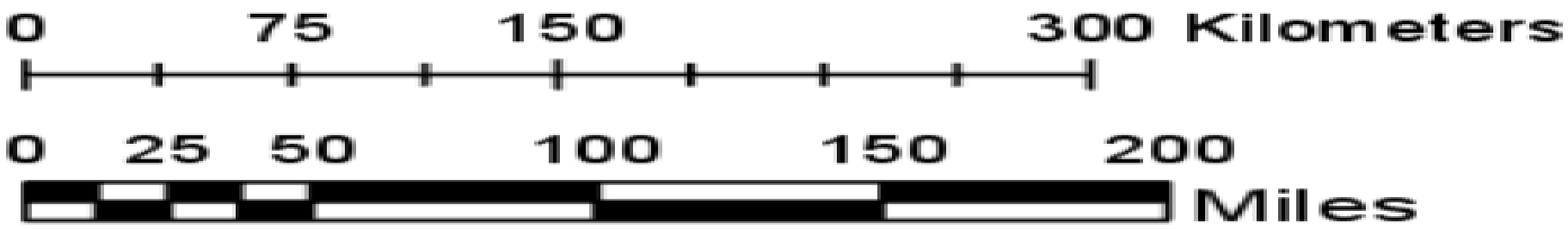
Three Types of Scale:

1. **Fractional or Ratio Scale:** A fractional **scale** map shows the fraction of an object or land feature on the map. ...
2. **Linear Scale:** A linear **scale** shows the distance between two or more prominent landmarks. ...
3. **Verbal Scale:** This **type of scale** use simple words to describe a prominent surface feature.



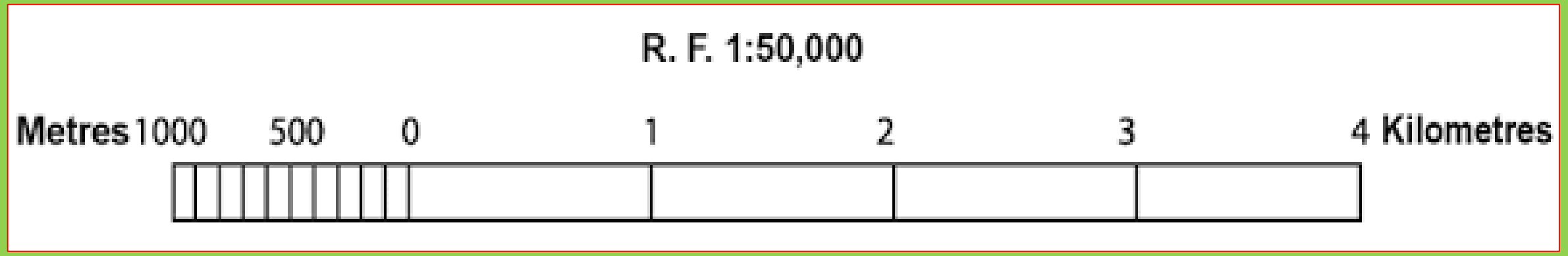
Linear Scale:

- This **scale** is also known as bar **scale** or the **scale** bar. It is drawn as a straight line which is drawn to **scale** and show the distance on the map which is equal to the real distance on the ground.



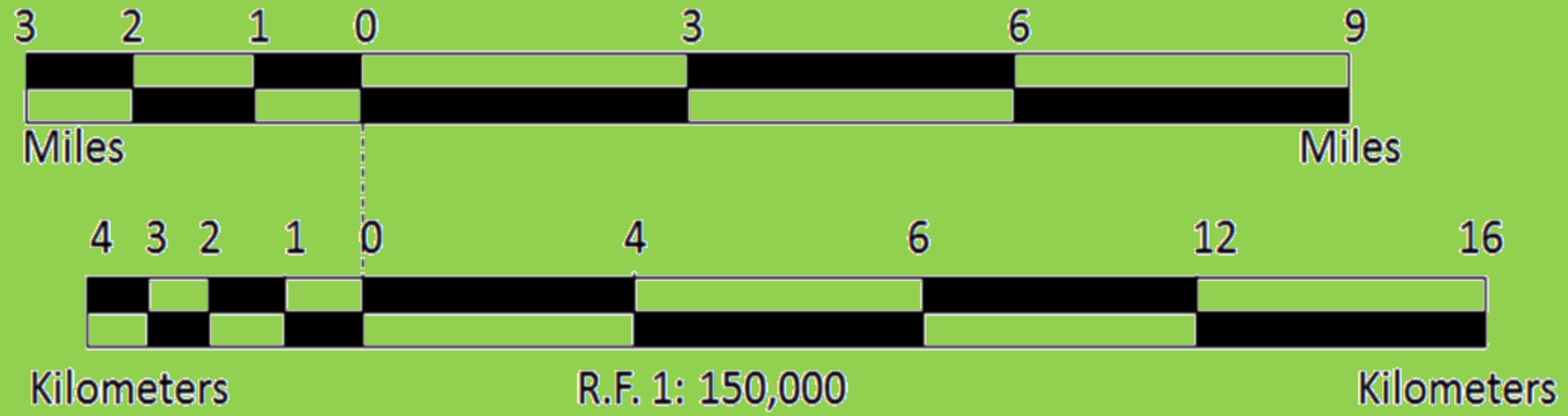
What is a numerical scale in geography?

- The **scale** on a map is the relationship between the real dimensions of the surface that is being represented and its proportion on the map.
- There are two types of **scales**: **NUMERICAL SCALE**. Indicates how many times smaller the representation is compared to the actual surface represented: 1:10.



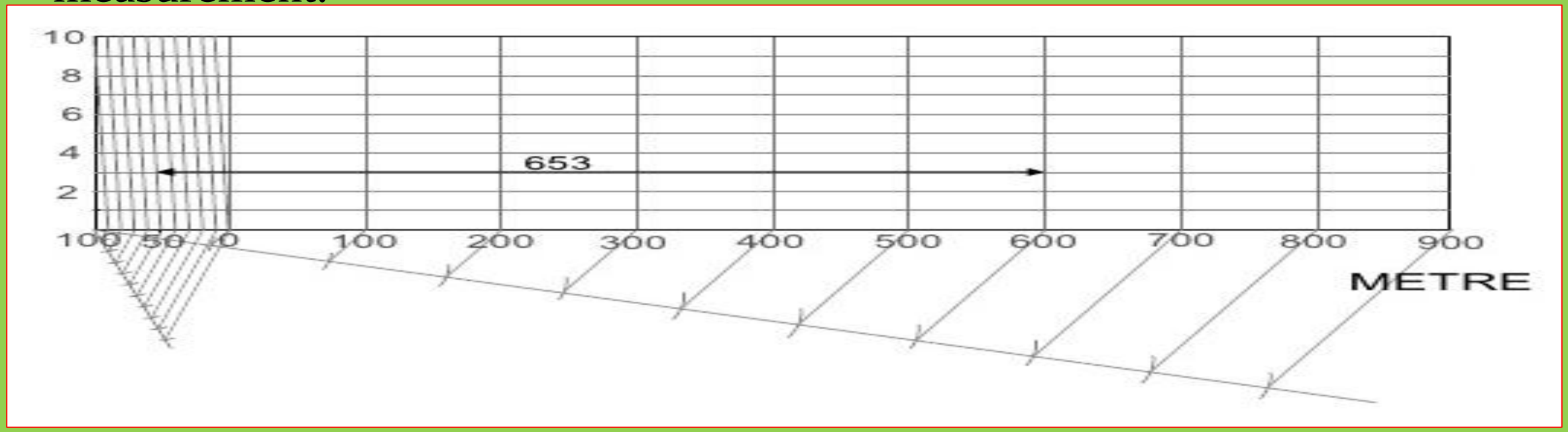
Comparative Scale

- A **comparative scale** is an ordinal or rank order **scale** that can also be referred to as a nonmetric **scale**.
- Respondents evaluate two or more objects at one time and objects are directly compared with one another as part of the measuring process.



Diagonal scale

- Diagonal scale is an engineering measuring instrument which is composed of a set of parallel straight lines which are obliquely crossed by another set of straight lines.
- Diagonal scales are used to measure small fractions of the unit of measurement.



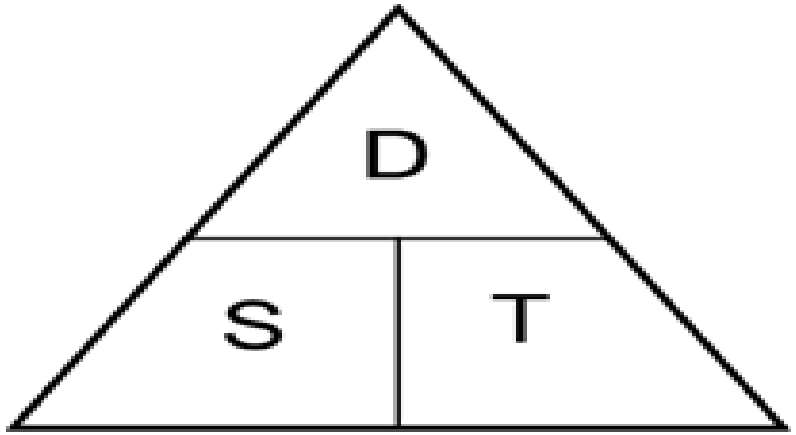
Time and distance scale

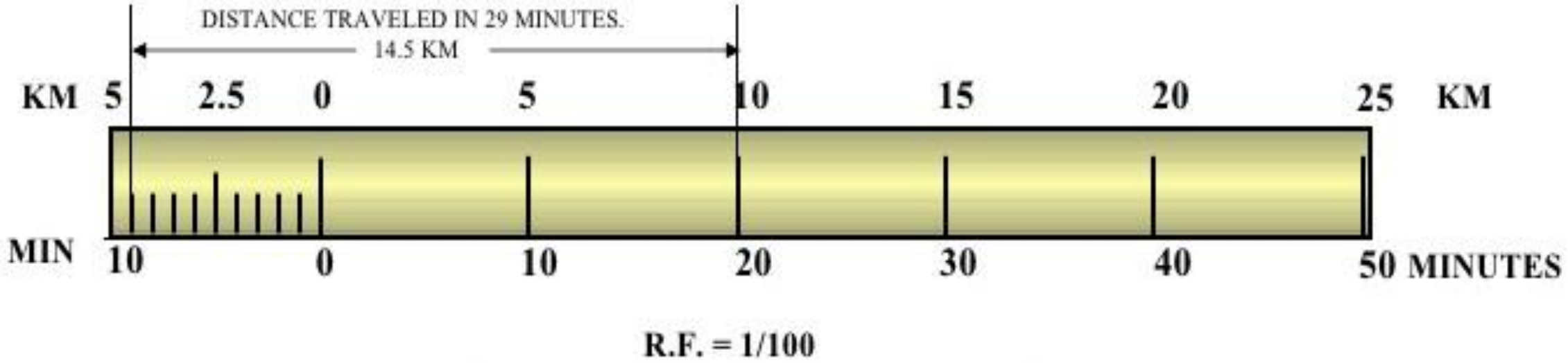
$$\text{Time} = \frac{\text{Distance}}{\text{Speed}} \quad \text{or}$$

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} \quad \text{or}$$

THEREFORE

Distance = Speed x time





R.F. = 1/100

What is a pace measurement?

- A **Pace Scale** is a unit of length consisting either of one normal walking step (approximately 0.75 metres or 30 inches), or of a double step, returning to the same foot (approximately 1.5 metres or 60 inches).
- The normal **Pace** length decreases with age and some health conditions.

Average running speeds, or **pace**

- **Average** running speeds, or **pace**, are based on a number of factors.

- These include current fitness level and genetics.

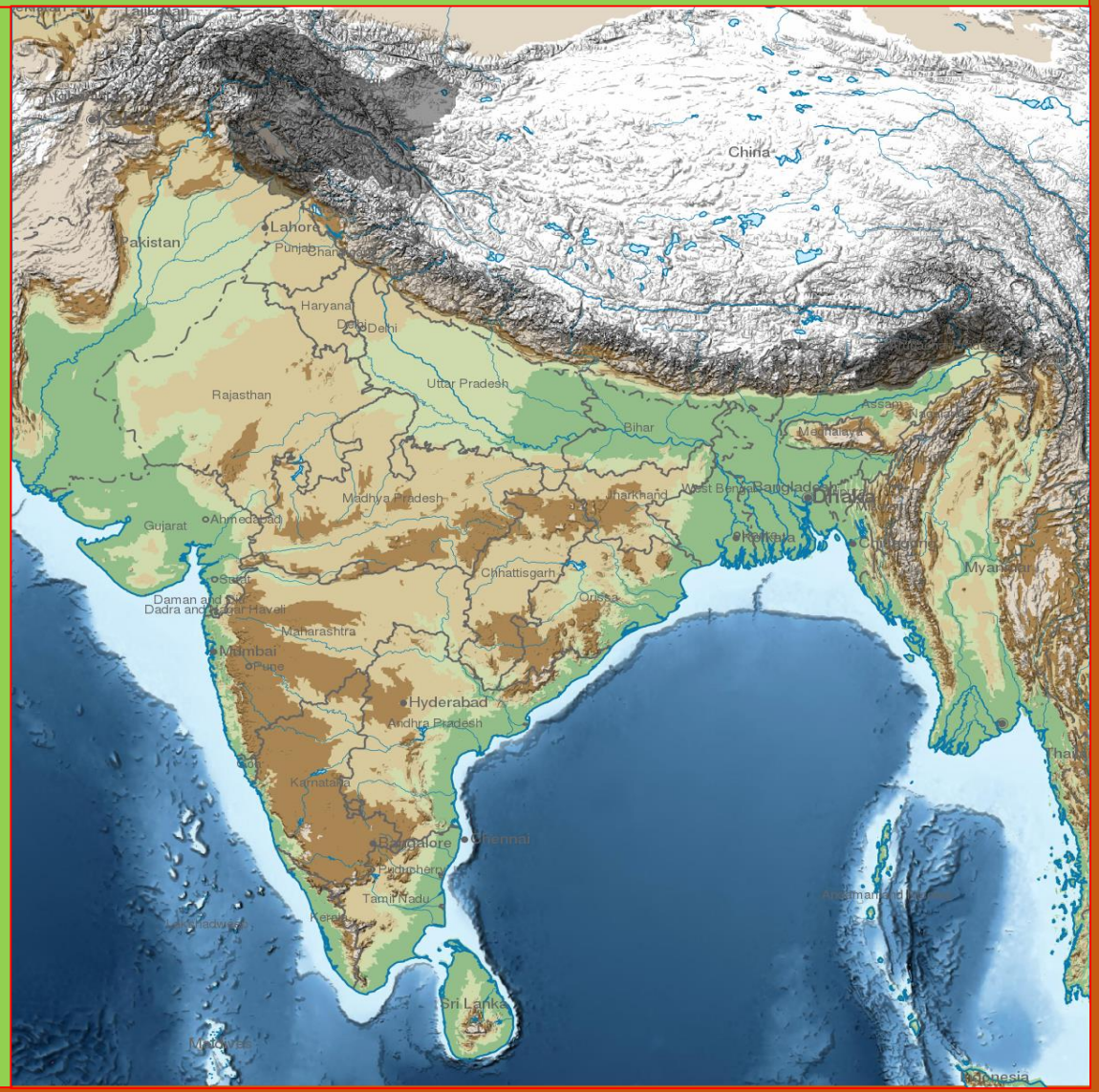
- In 2015, **Strava**, an international running and cycling tracking app, reported the **average** speed for men in the United States was 9:03 minutes **per** mile (1.6 **kilometers**).

What is a good 5k pace?

- Generally, many runners consider a **good** finishing **time** for a **5k** to be anything under 25 minutes, which means keeping an 8-minute mile **pace**.
- If this is your first **5k**, an 8-minute-mile **pace** might be fairly aggressive, depending on how long you have trained, how old you are, and so forth.

Definition of maps

- A **map** is a symbolic representation of selected characteristics of a place, usually drawn on a flat surface.
- **Maps** present information about the world in a simple, visual way.
- They teach about the world by showing sizes and shapes of countries, locations of features, and distances between places.



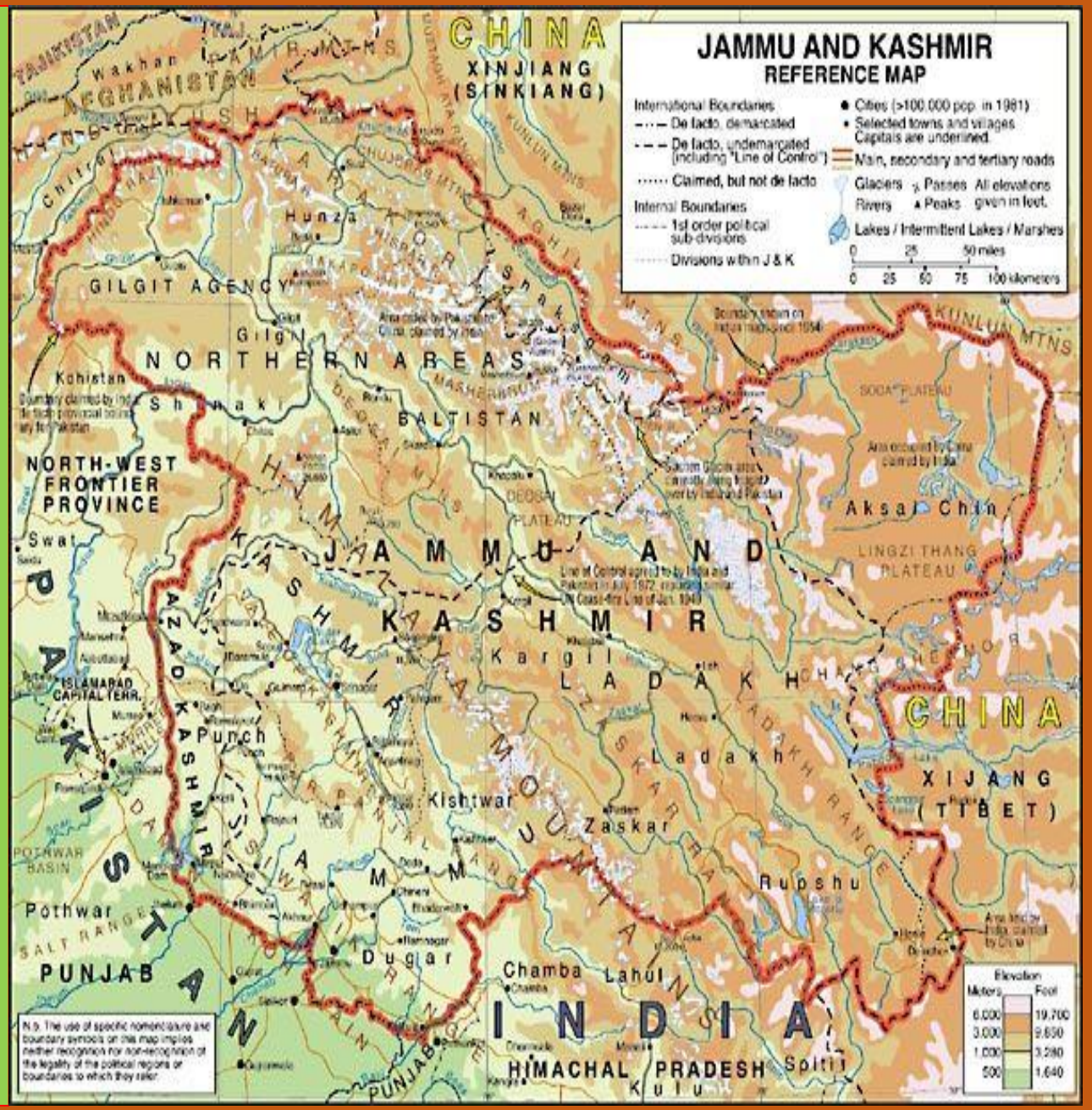
Classification of maps

According to the ICSM (Intergovernmental Committee on Surveying and **Mapping**), there are five different **types of maps**:

1. **General Reference map,**
2. **Topographical map,**
3. **Thematic map,**
4. **Navigation Charts and**
5. **Cadastral Maps and Plans**

1. General Reference Maps

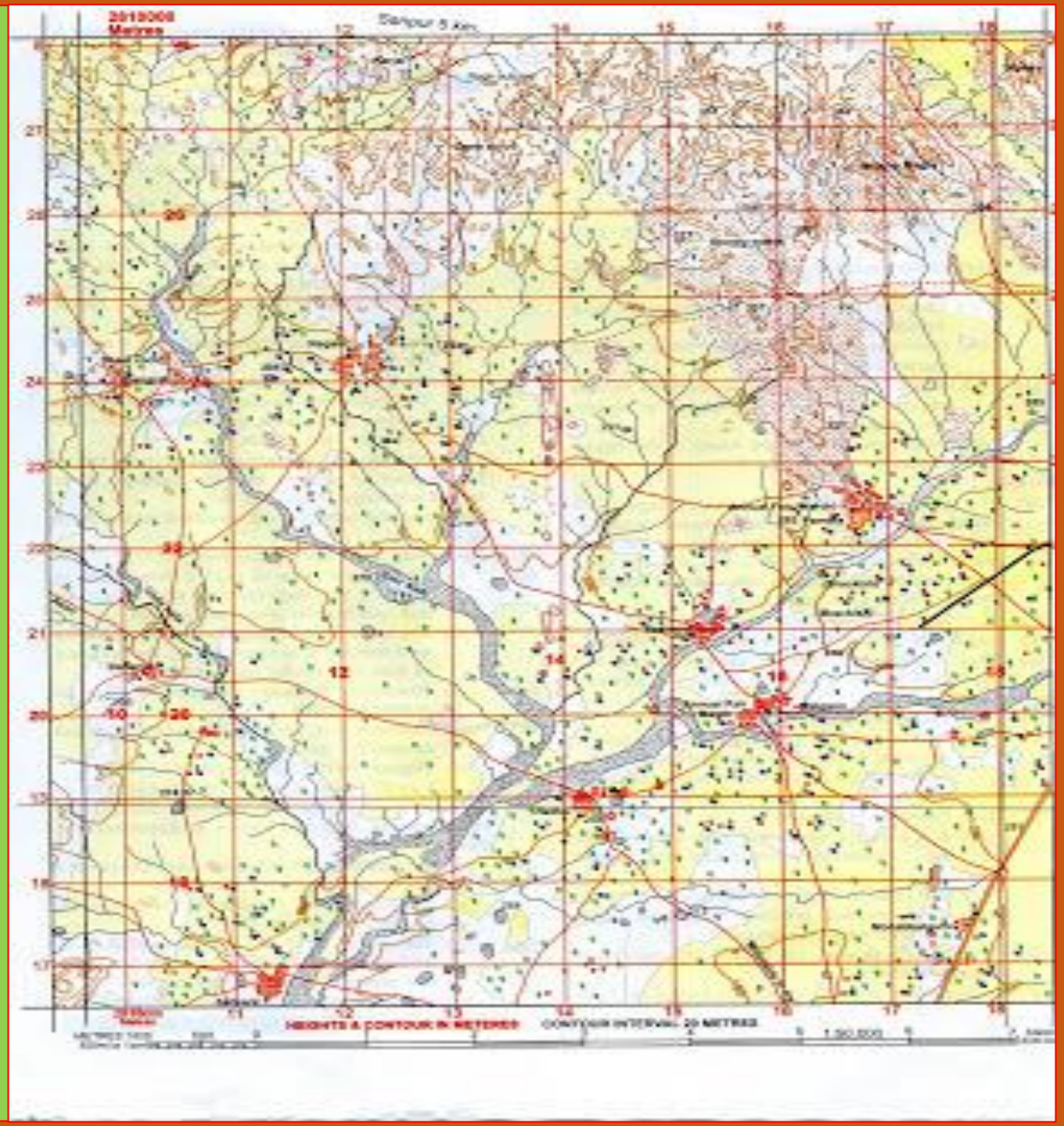
- These are simple **maps** showing important physical (natural and man–made) features in an area.
-
- Their main purpose is to summarize the landscape to aid discovery of locations. ... For example, road **maps** show roads boldly and may use road widths and colour to distinguish between major and minor roads.



2. Topographical map:

- **Topographic maps** are a detailed record of a land area, giving geographic positions and elevations for both natural and man-made features.

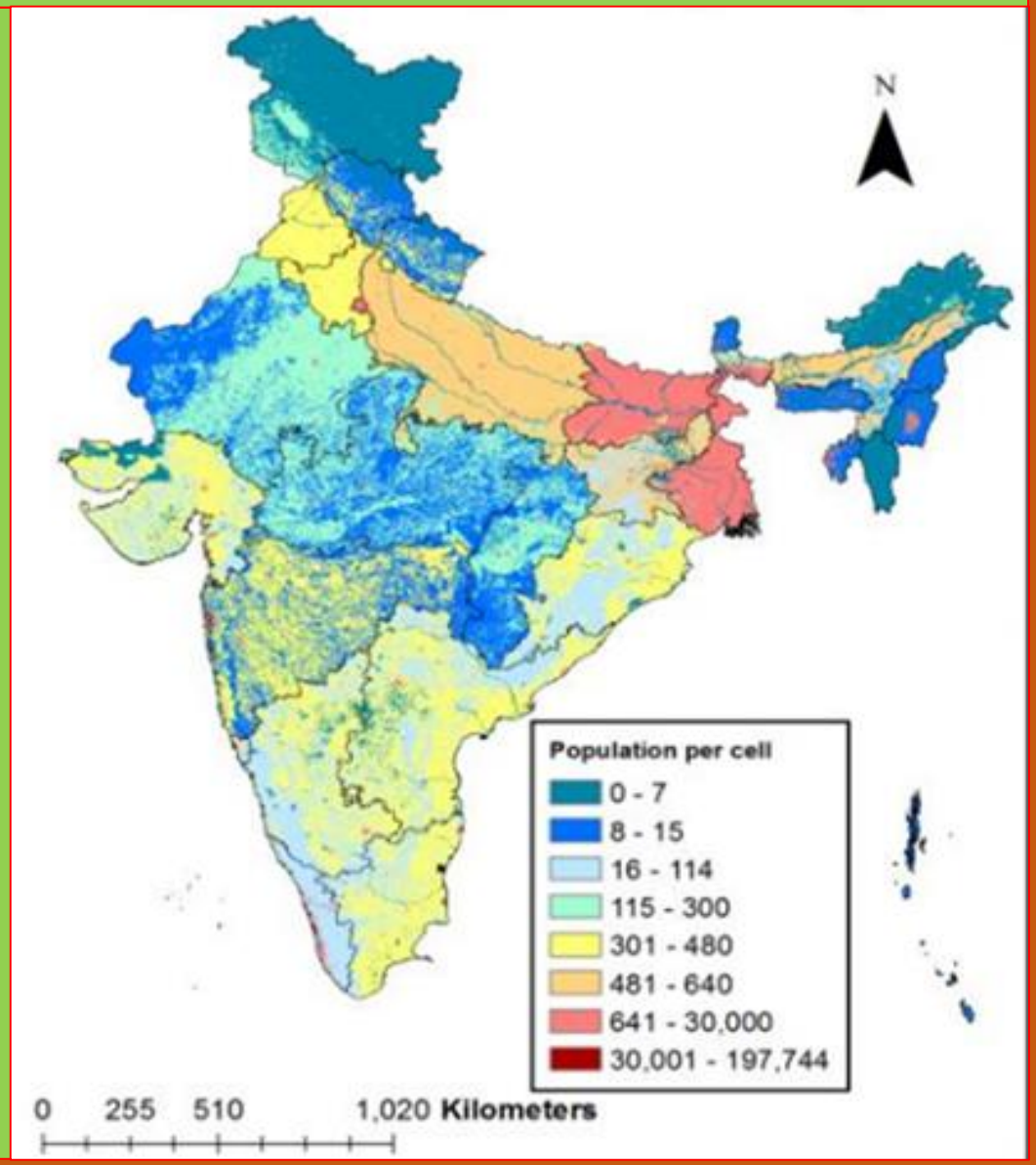
- **They** show the shape of the land the mountains, valleys, and plains by **means** of brown **contour** lines (lines of equal elevation above sea level).



3. Thematic map:

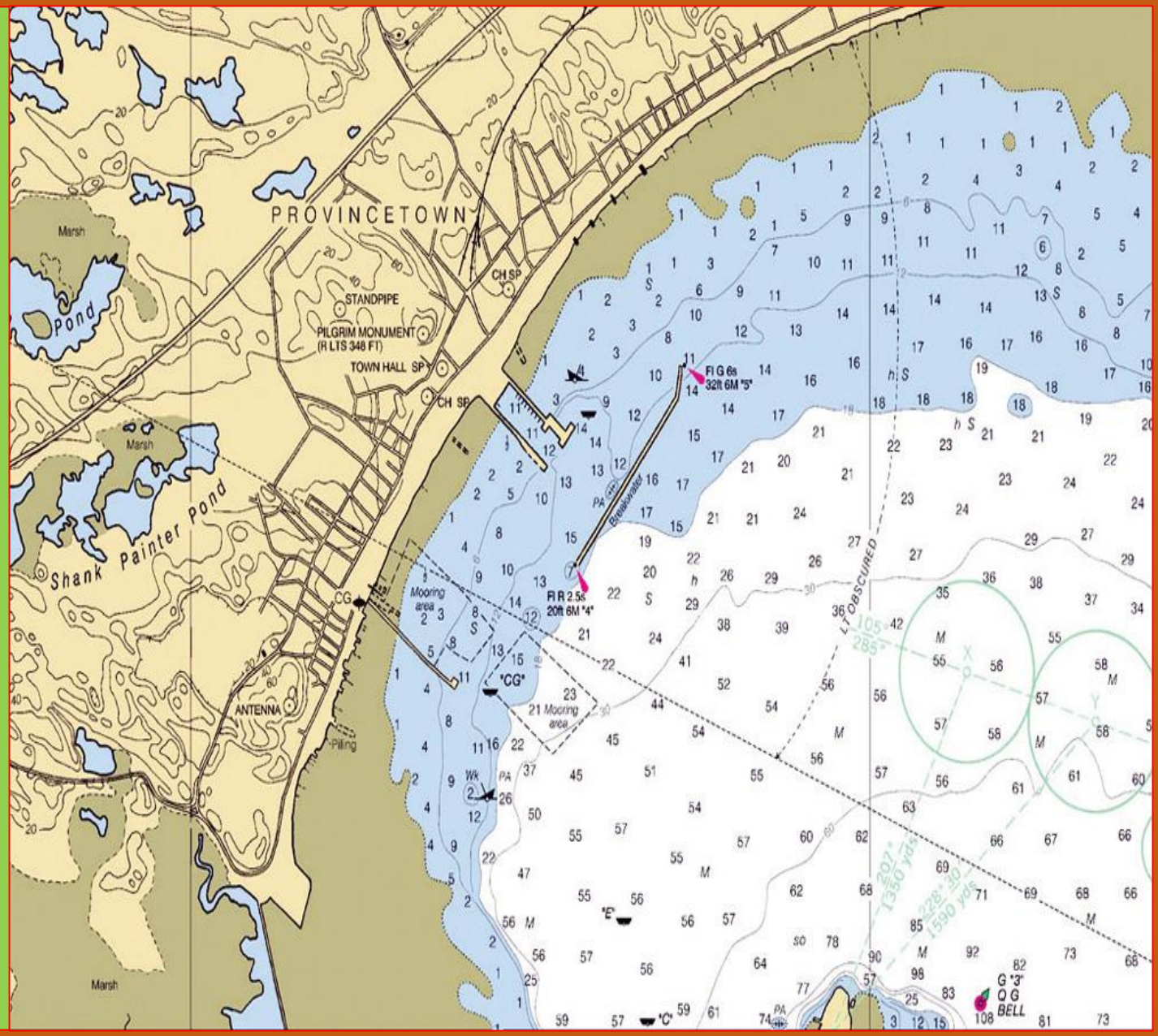
Thematic map:

- A thematic map is a type of map that portrays the geographic pattern of a particular subject matter in a geographic area.
- This usually involves the use of map symbols to visualize selected properties of geographic features that are not naturally visible, such as temperature, language, or population.



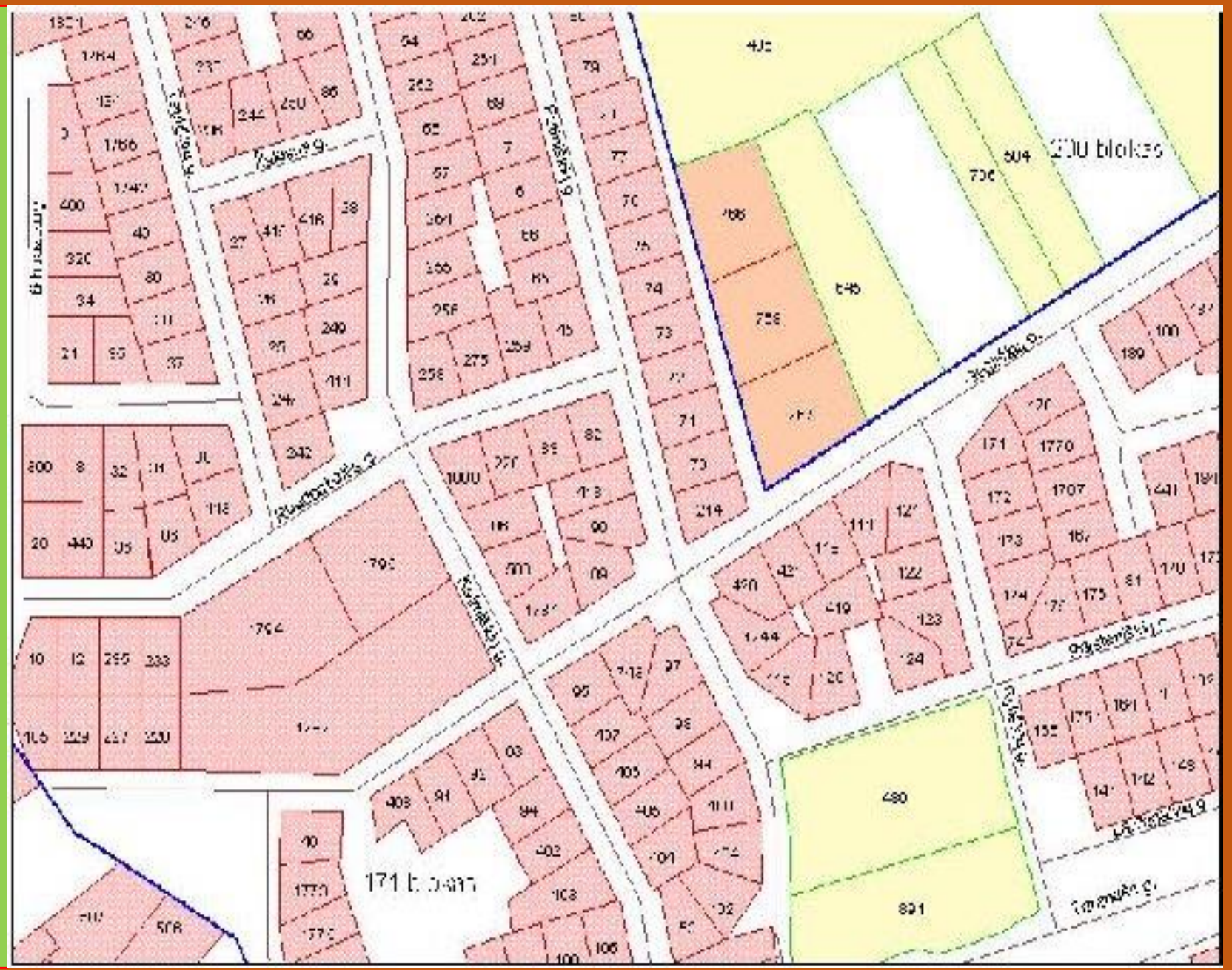
4. Nautical chart

- A nautical **chart** is one of the most fundamental tools available to the mariner. It is a map that depicts the configuration of the shoreline and seafloor.
- It provides water depths, locations of dangers to **navigation**, locations and characteristics of aids to **navigation**, anchorages, and other features.



4. Cadastral Maps

The **cadastral map** shows all land parcels graphically, legal survey measurements are used to precisely identify all new parcel boundaries determined after. the initial creation of the **maps**, and. the Land Book identifies the legal land rights based on the **cadastral** identificati on.



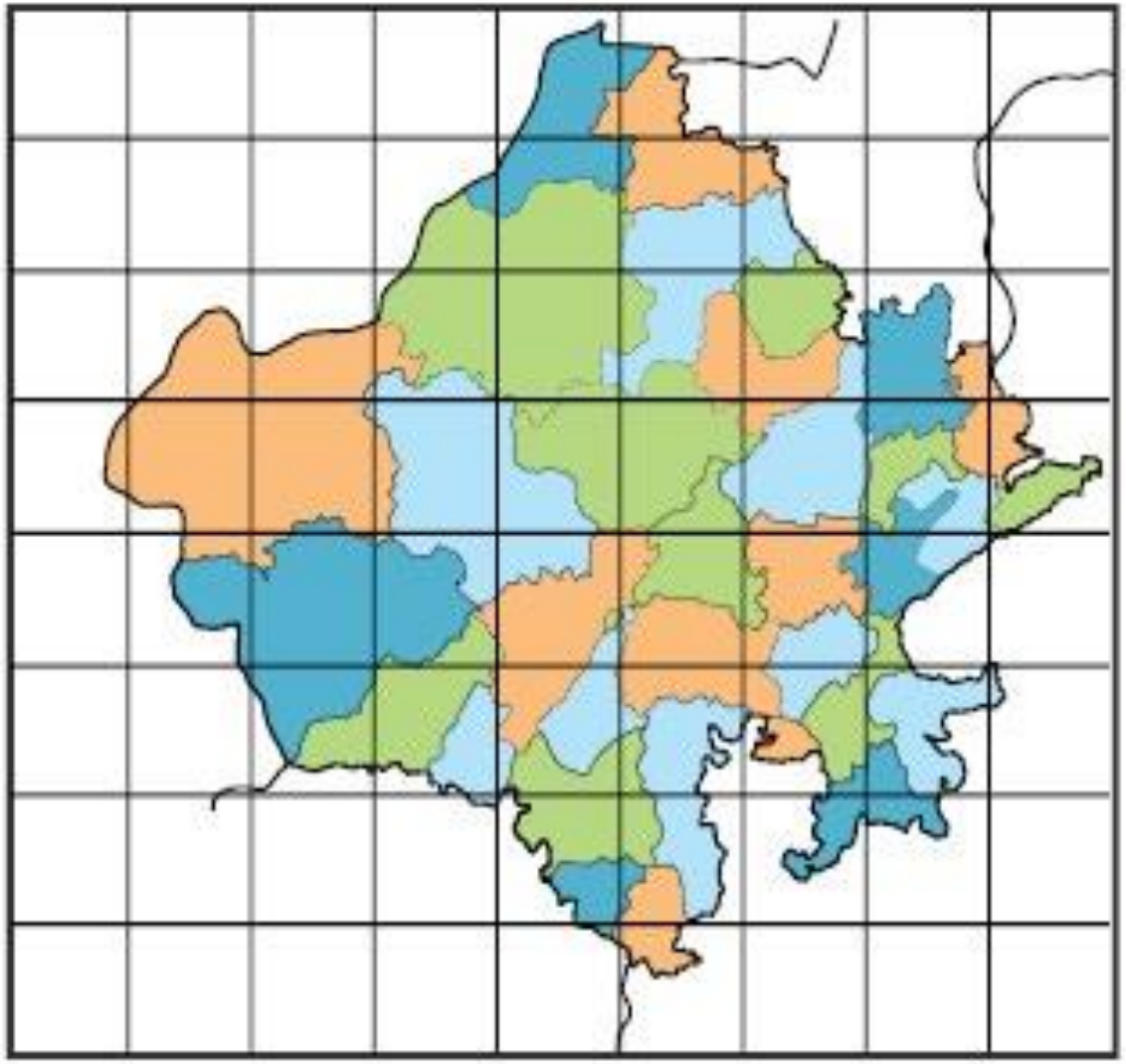
Enlargement and Reduction of Maps

- **By square method**
- **Reduction** or **enlargement** involves change in the size.
- An **enlargement** provides the same **map** but proportionally larger than the original.
- A **reduction** gives the same **map** that is proportionally smaller than the original.

$$X = \frac{1/16{,}000{,}000}{1/8{,}000{,}000} \text{ x } 1 \text{ cm}$$

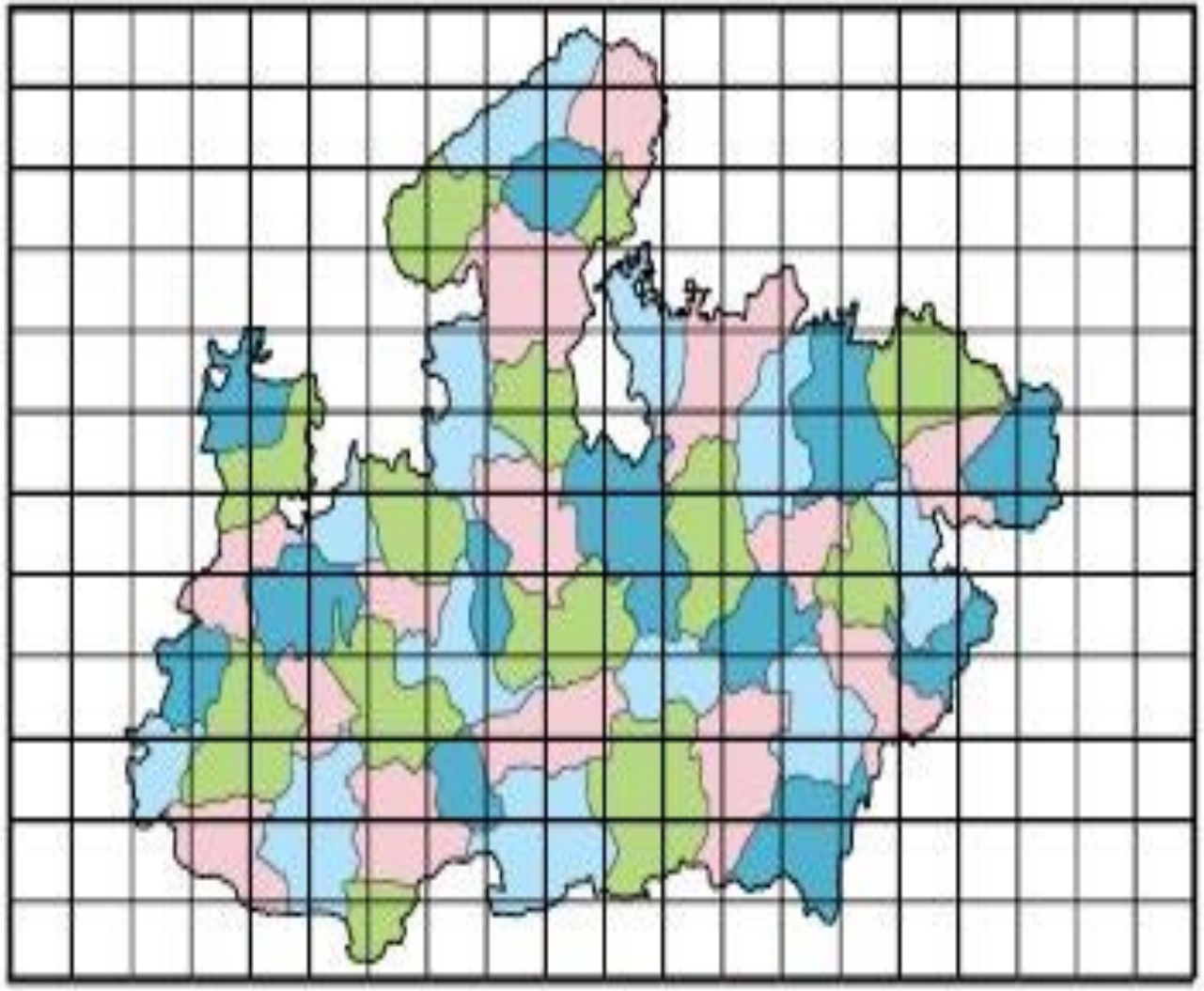
$$X = \frac{1 \text{ x } 8{,}000{,}000}{1 \text{ x } 16{,}000{,}000} = \text{½ cm}$$

Map of Rajasthan



R.F= 1:16,000,000

Map of Madhya Pradesh

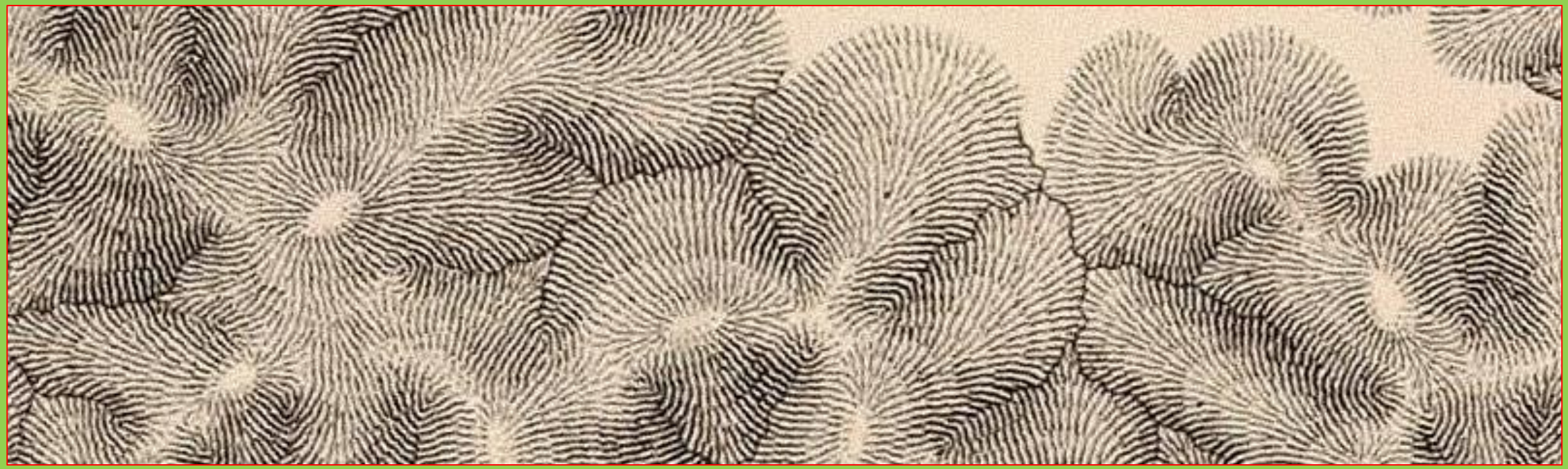


R.F= 1:16,000,000

Methods of Showing relief:

1. Hachures are an older mode of representing relief.

- They show orientation of slope, and by their thickness and overall density they provide a general sense of steepness.
- Being non-numeric, they are less useful to a scientific survey than contours, but can successfully communicate quite specific shapes of terrain.

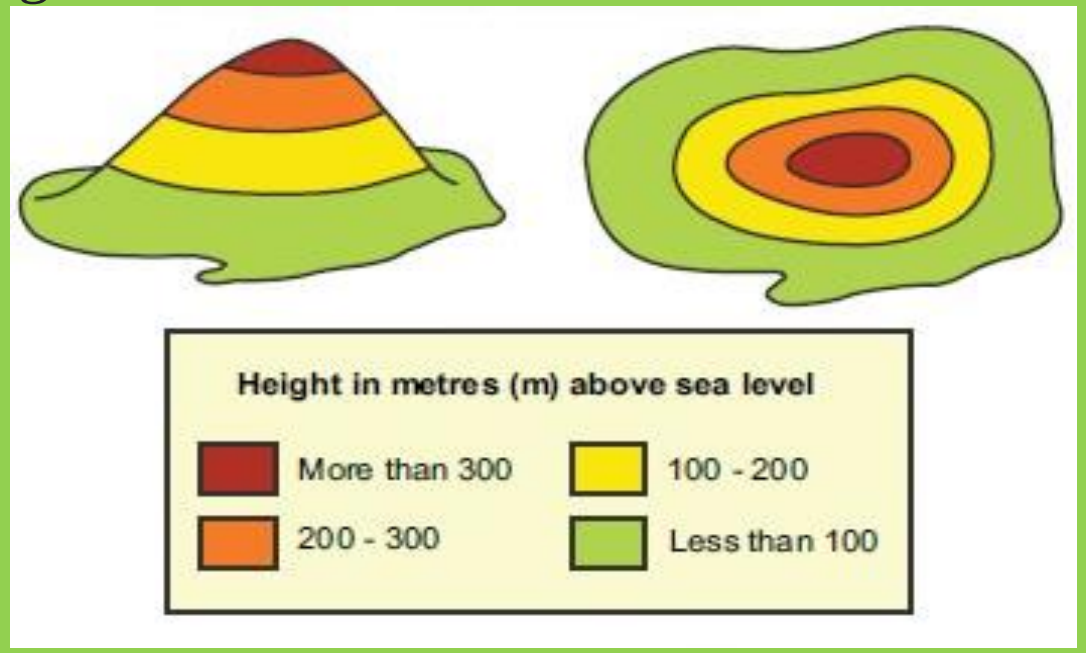


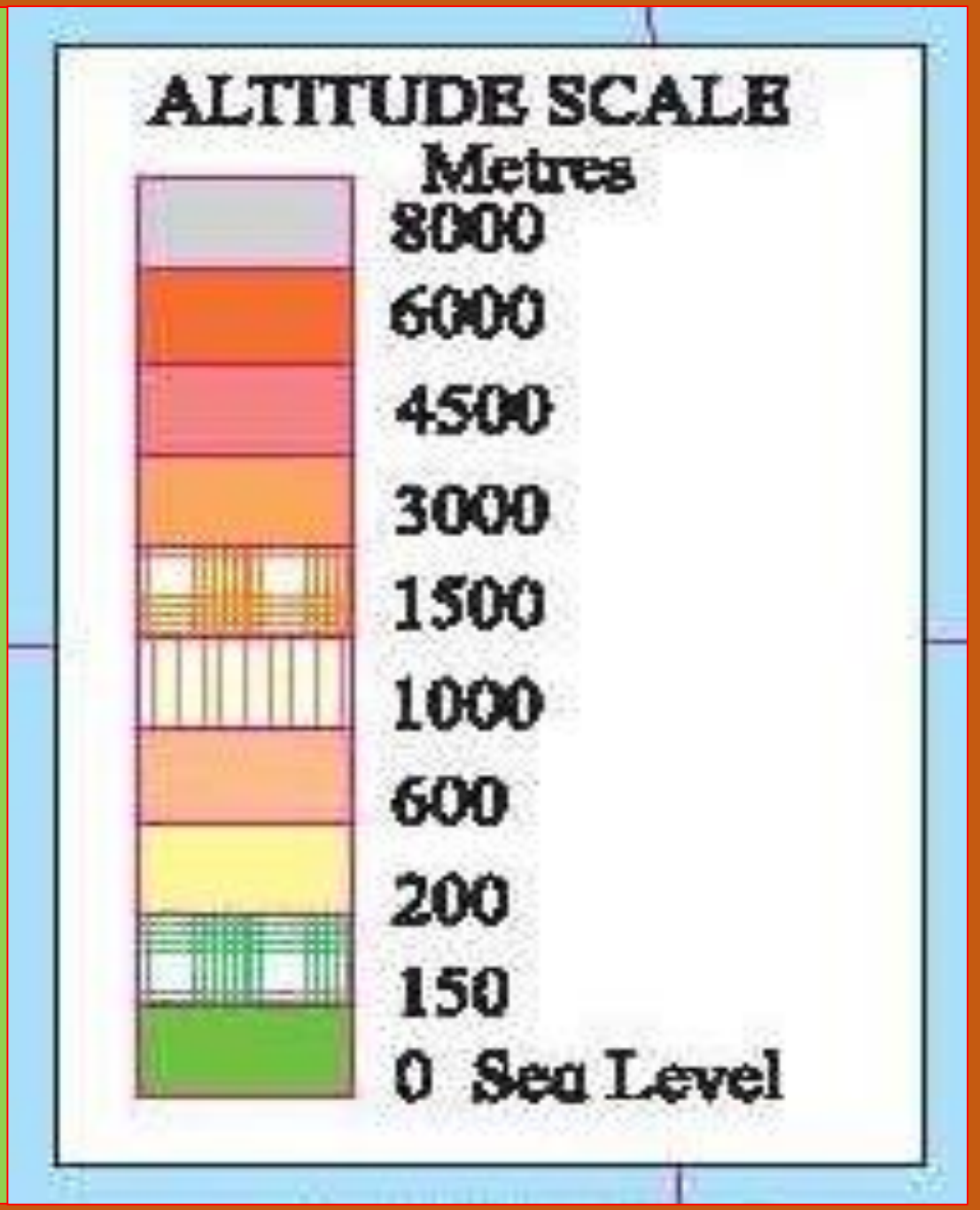
2. Hill shading

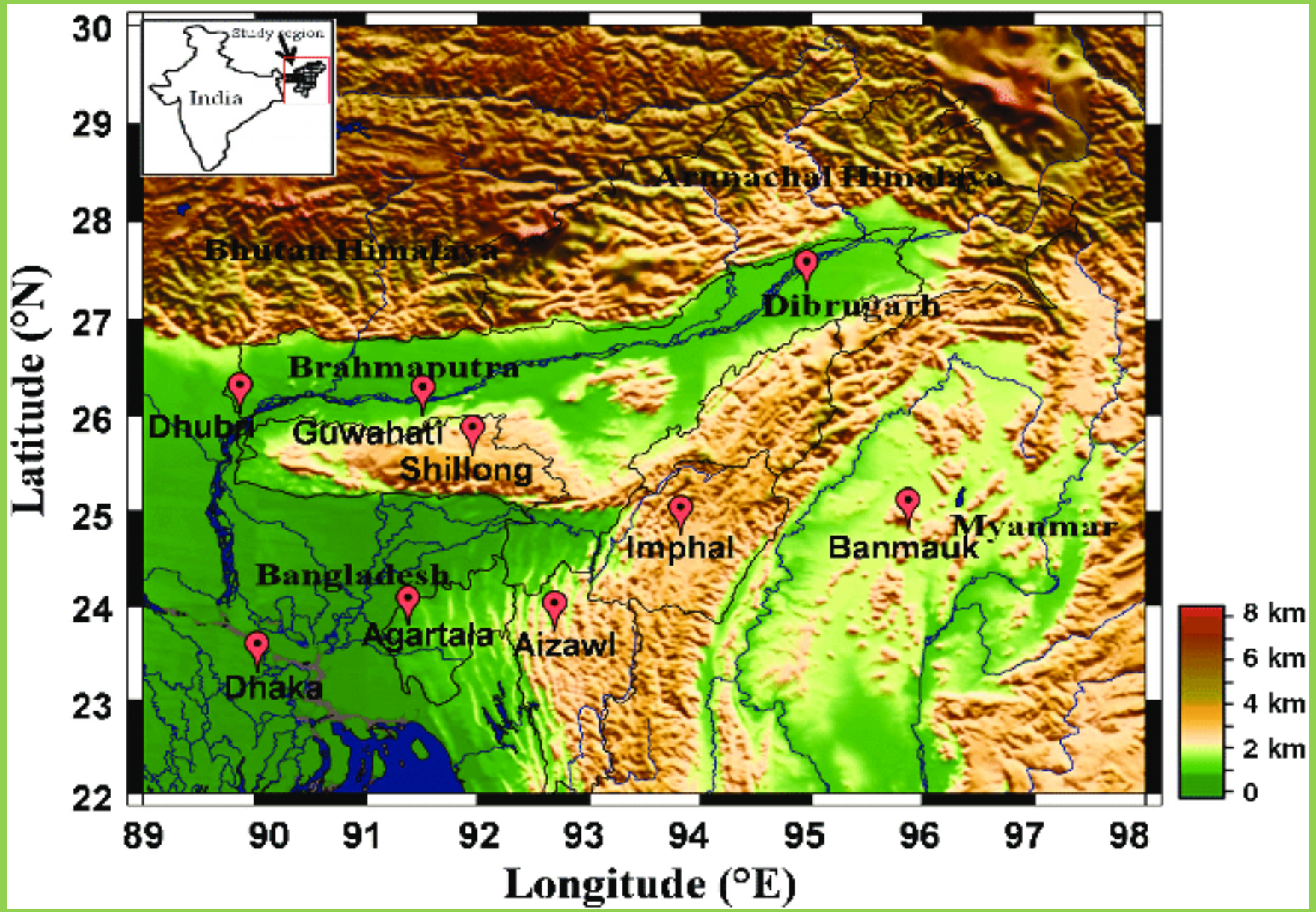
- **Hill shading** is the process of adding light and dark areas or **shading** to a map to highlight the location of **hills** or mountains.
- **Hill shading** uses light and dark areas to highlight where sunlight would hit and where shadows would form in the presence of **hills** and mountains.

3. Layer tinting

- **Hypsometric tinting or Layer tinting is a method** of showing relief on maps and charts by coloring in different shades those parts that lie between different levels.
- Sometimes referred to as elevation **tint**, altitude **tint**, and **layer tint**, color gradients, and gradient **tints**.

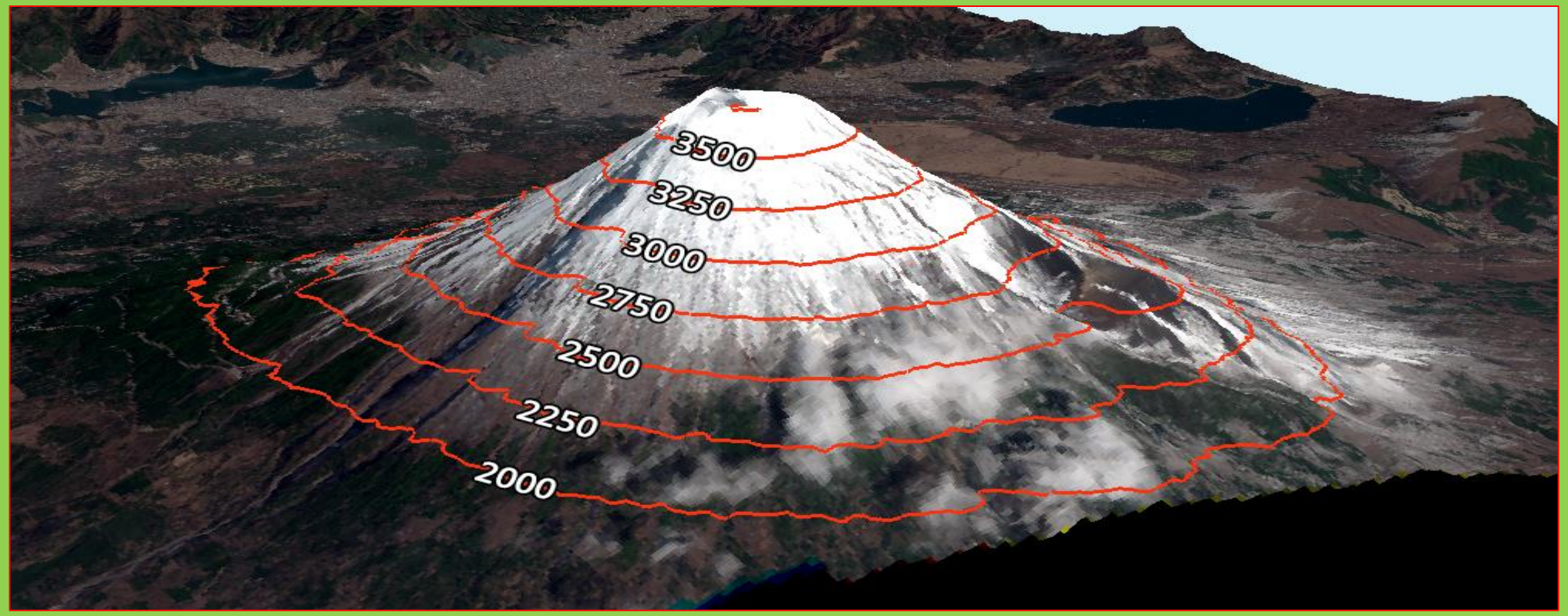





Study region
India
Arunachal Himalaya
Bhutan Himalaya
Dibrugarh
Brahmaputra
Dhubri
Guwahati
Shillong
Imphal
Banmauk
Myanmar
Bangladesh
Agartala
Aizawl
Dhaka
8 km
6 km
4 km
2 km
0
Latitude (°N)
30
29
28
27
26
25
24
23
22
89
90
91
92
93
94
95
96
97
98
Longitude (°E)

Contour: **contour** line, a line on a map representing an imaginary line on the land surface, all points of which are at the same elevation above a datum plane, usually mean sea level. ...

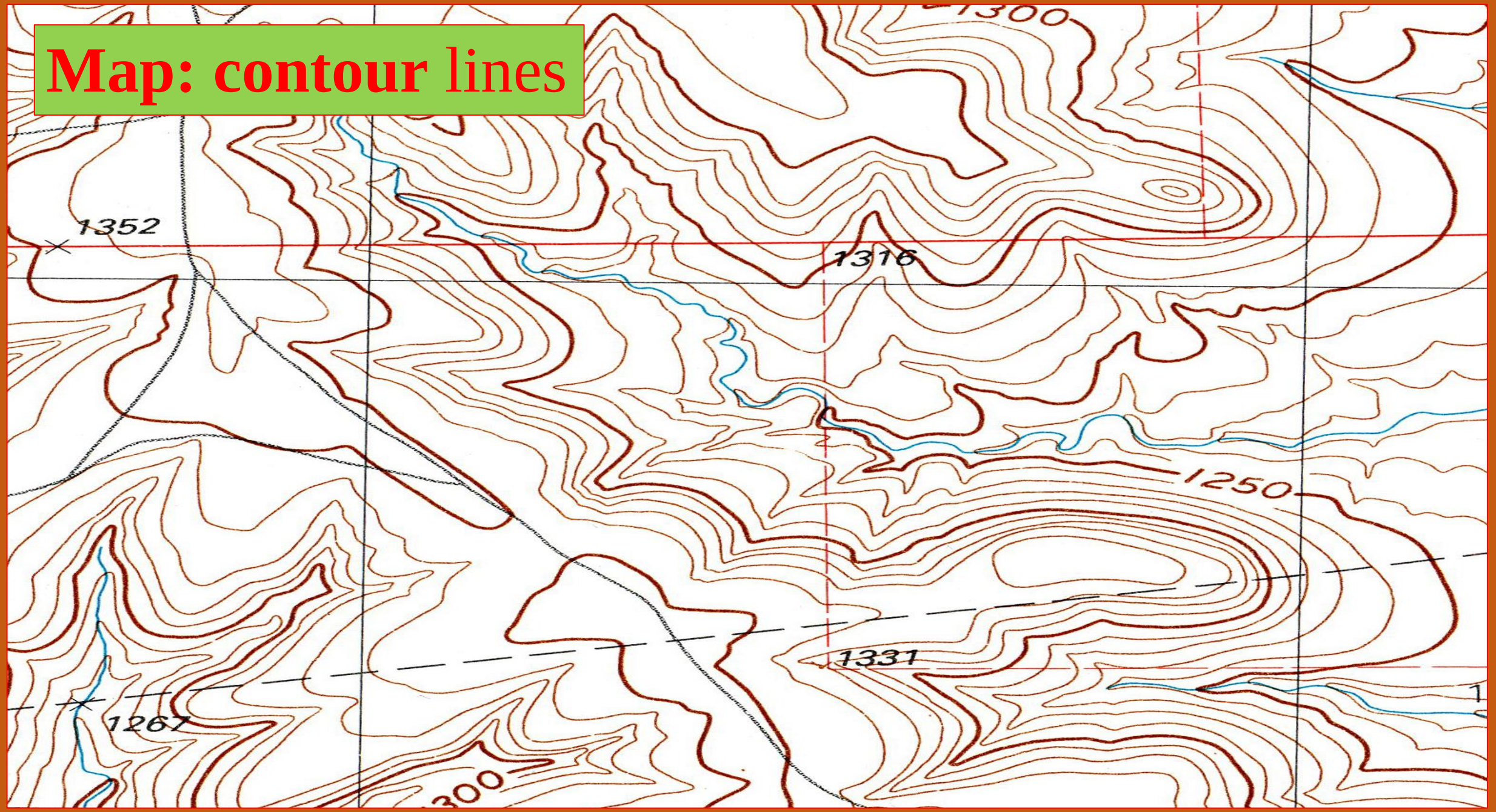
Map: **contour** lines. The diagram illustrates how **contour** lines show relief by joining points of equal elevation.



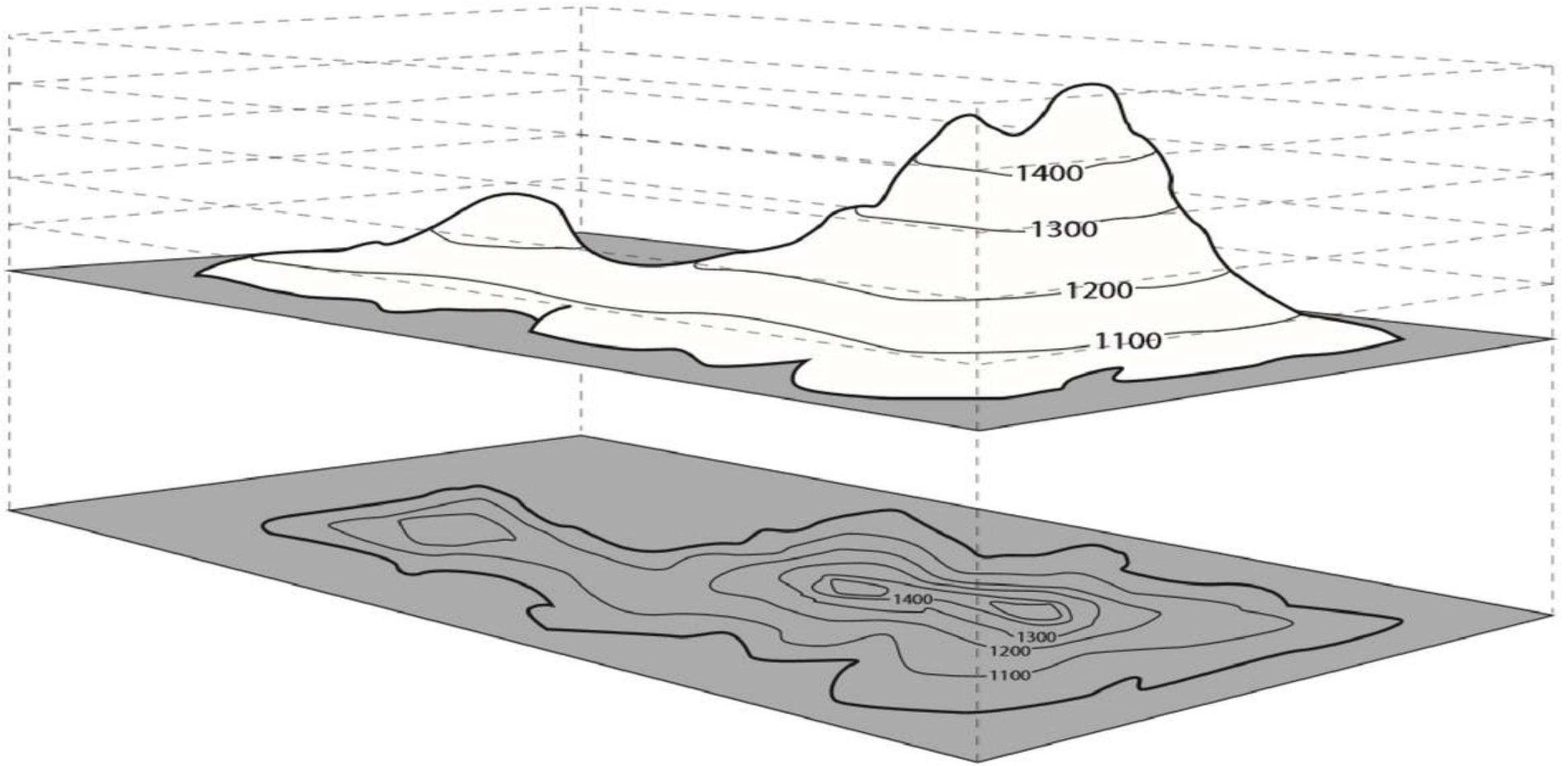
There are 3 kinds of contour lines

1. **Index lines** are the thickest contour lines and are *usually* labeled with a number at one point along the line. This tells you the elevation above sea level.
2. **Intermediate lines** are the thinner, more common, lines between the index lines. They usually don't have a number label. Typically one index line occurs for every five intermediate lines.
3. **Supplementary lines** appear as dotted lines, indicating flatter terrain.

Map: contour lines



Understanding contour line formations and how to read topographic maps

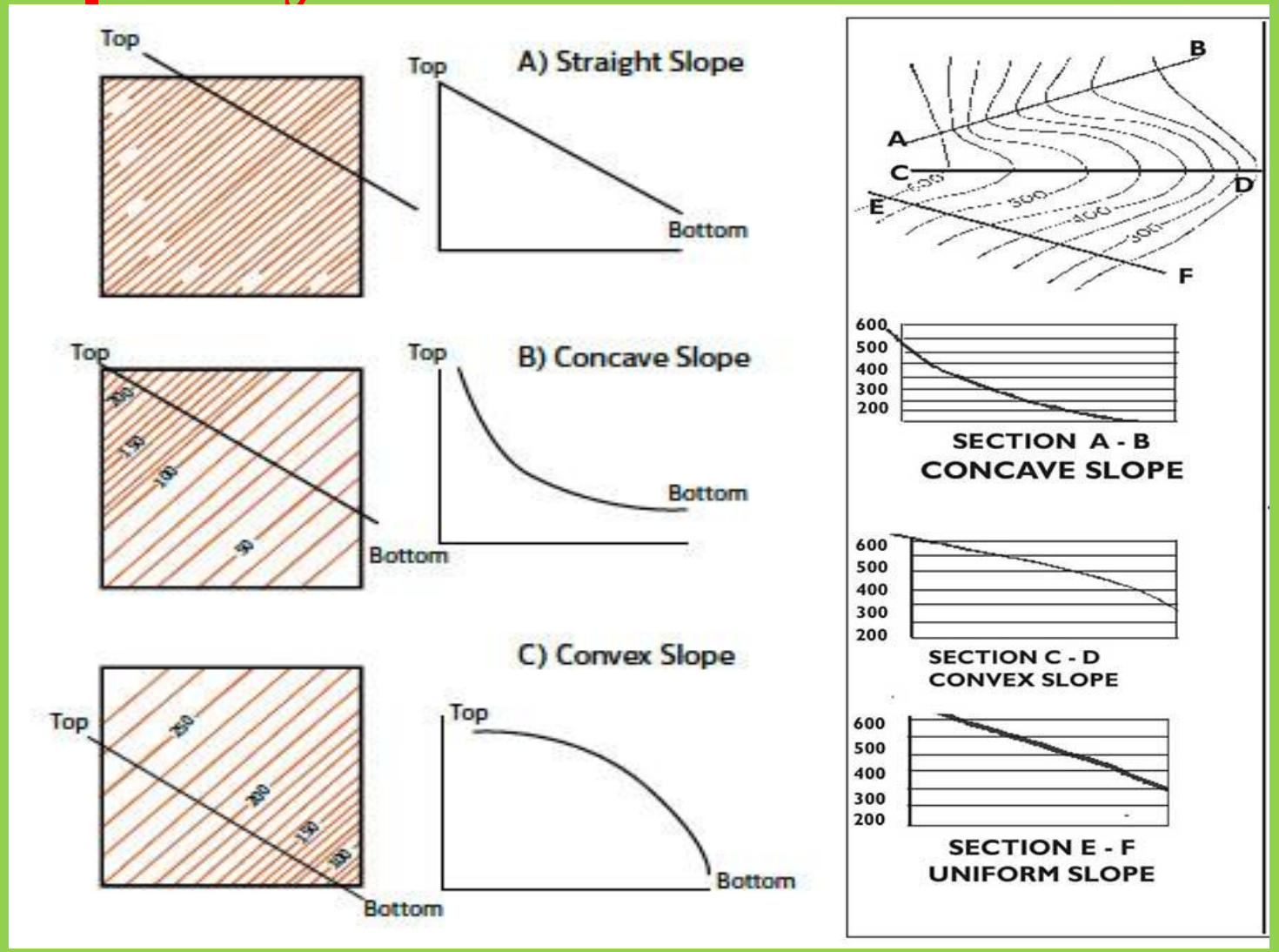


Representation of slopes by contours

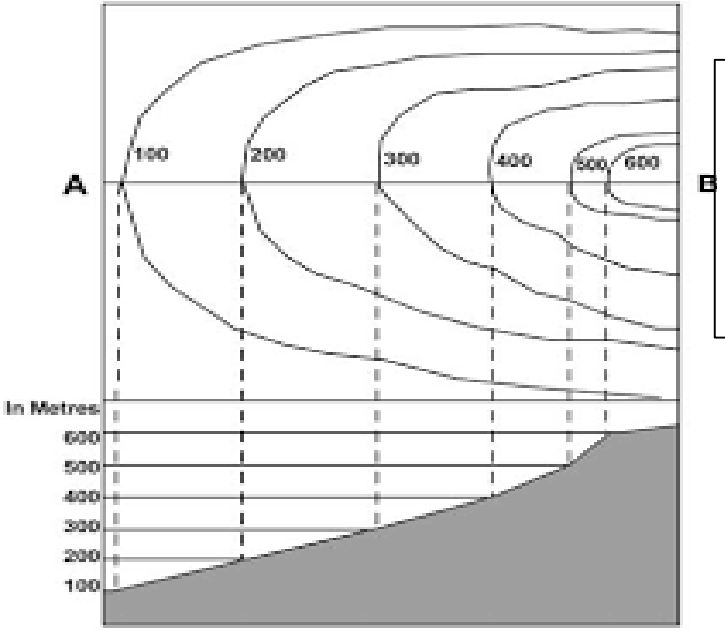
- **Contour** lines and their shapes **represent** the height and **slope** or gradient of the landform.
- Closely spaced **contours represent** steep **slopes** while widely spaced **contours represent** gentle **slope**.
- When two or more **contour** lines merge with each other, they **represent** features of vertical **slopes** such as cliffs or waterfalls.

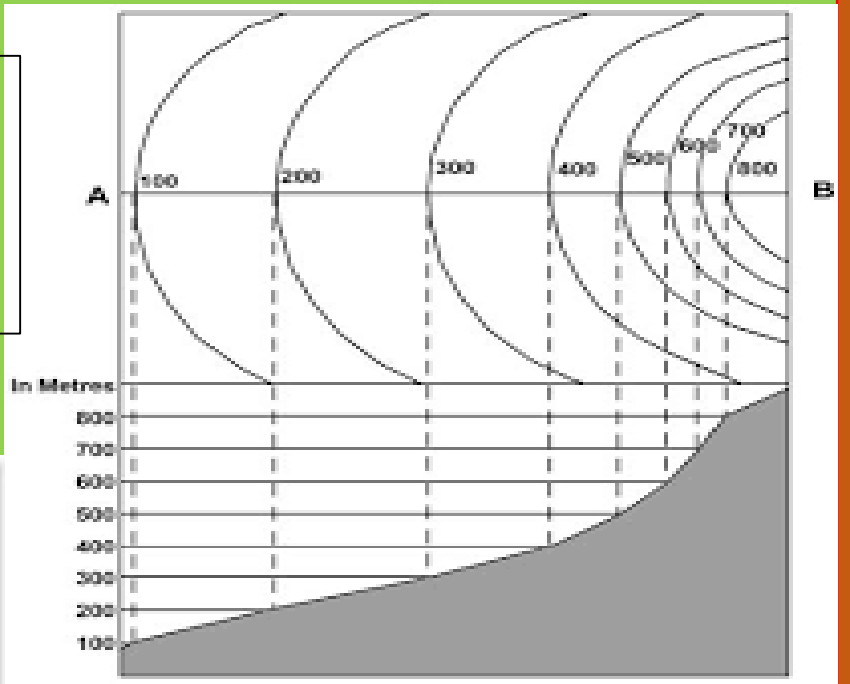
Representation of slopes by contours

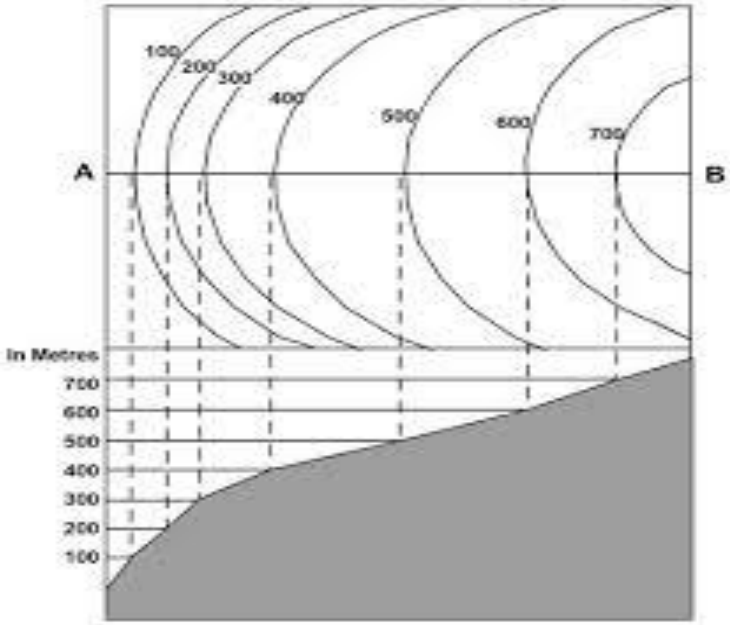
- Even slope,
- Un- even slope.
- Gentle Slope,
- Steep Slope
- Concave slope,
- Convex Slope &
- Terraced slope

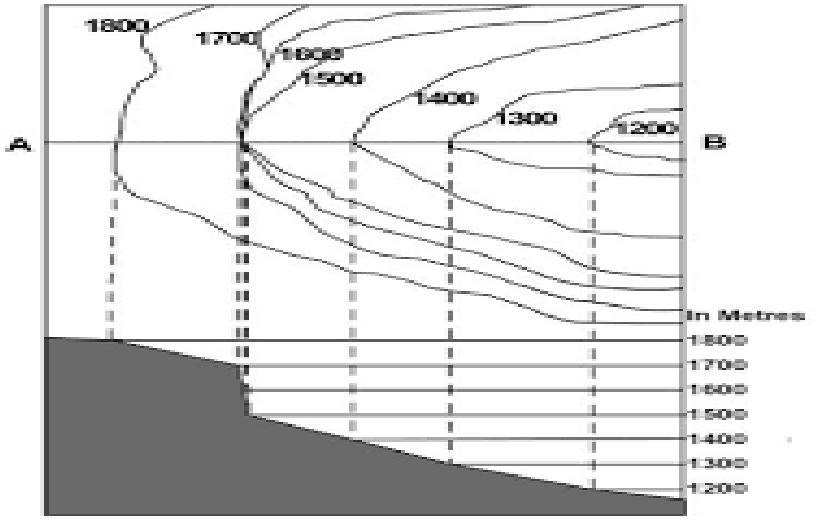


Representation of slopes by contours



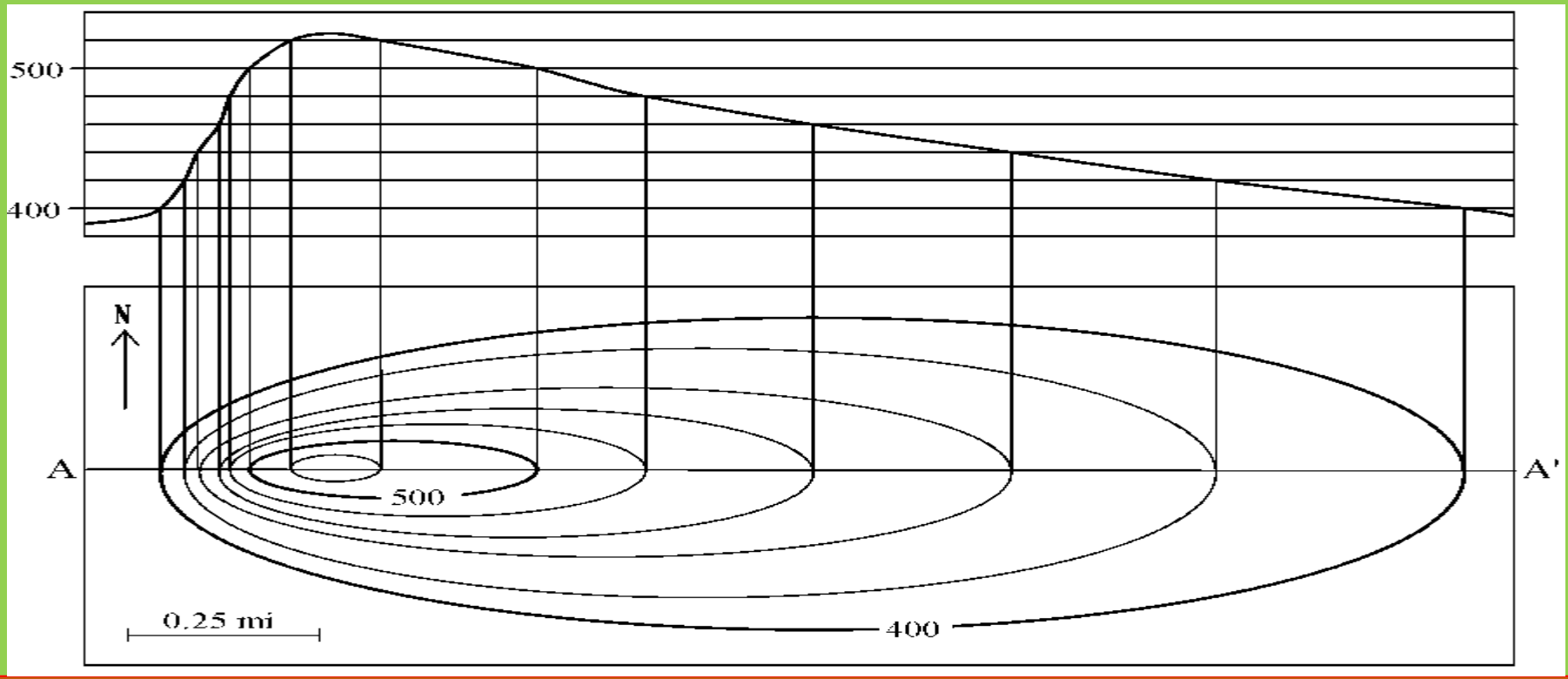


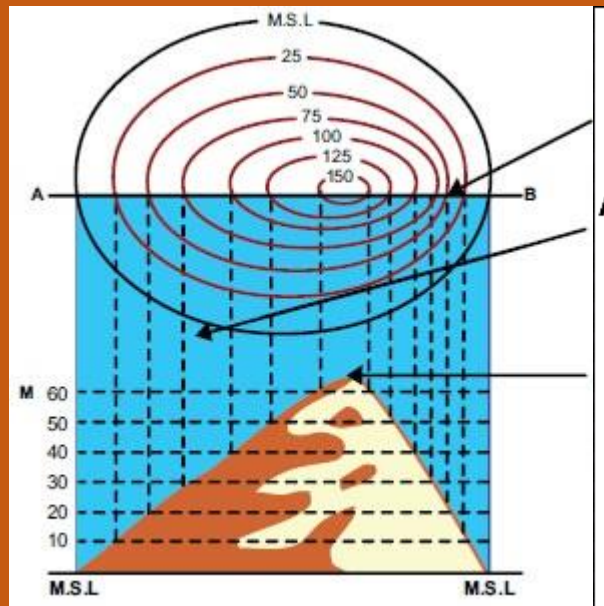




Representation of landforms by cross section method

- **Cross sections** are line graphs that show a sideways view of a landscape.
- They can show features such as hills and valleys, or depths, such as the depth of a river.
- **Cross sections** of hills use contour lines to determine the height of the land.

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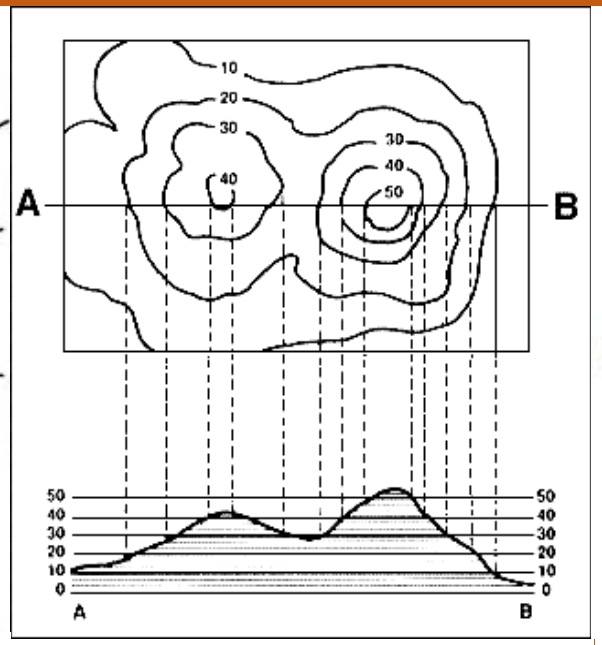
M.S.L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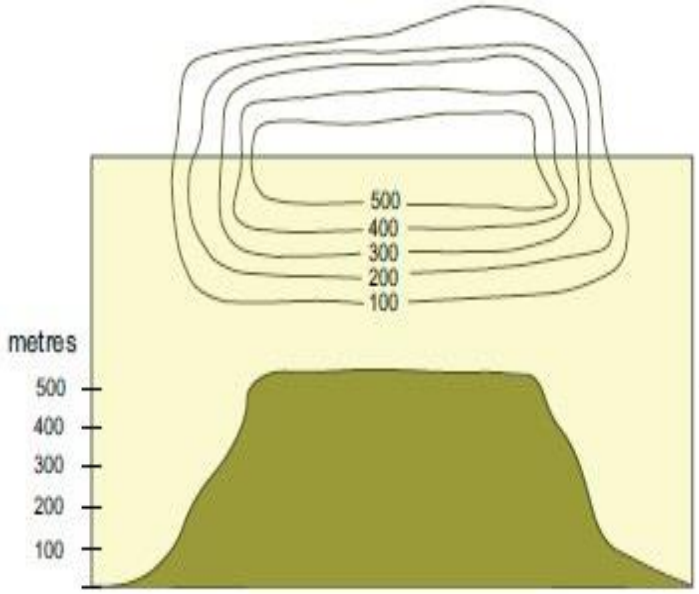
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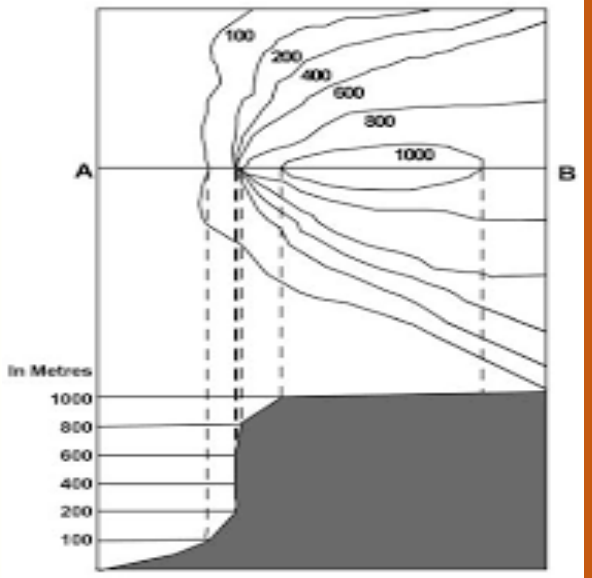
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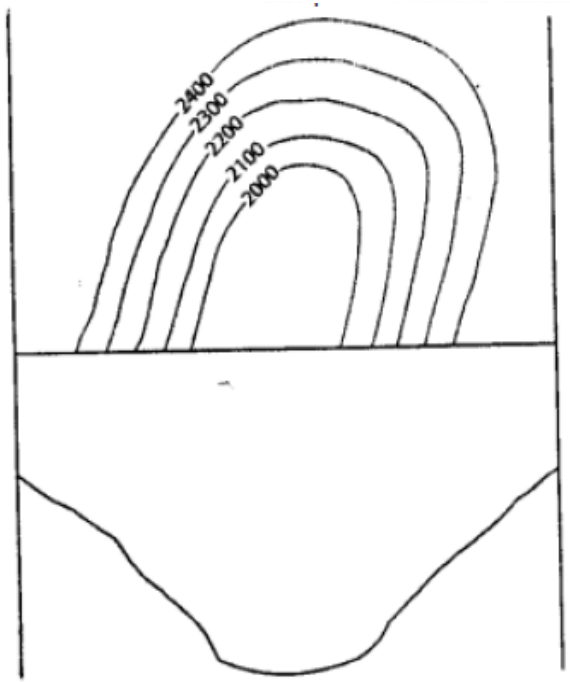
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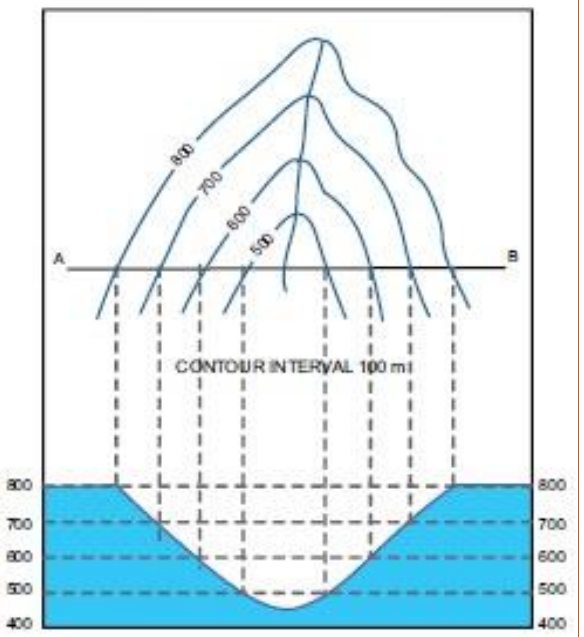
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CONTOUR INTERVAL 100 m
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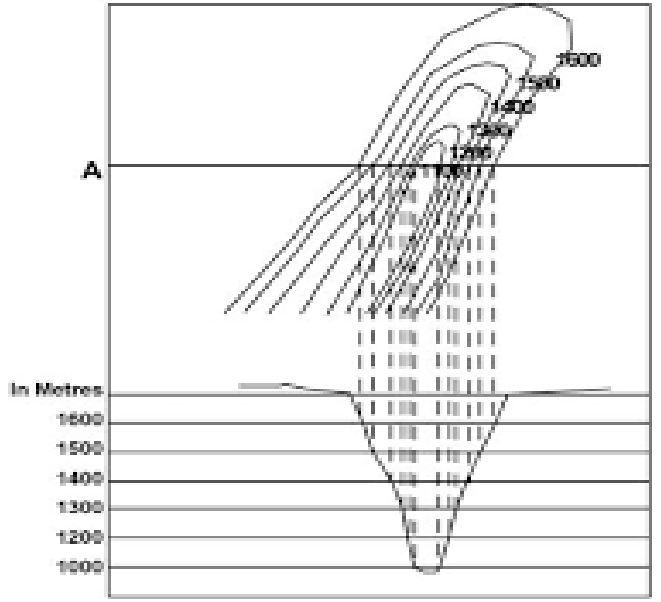
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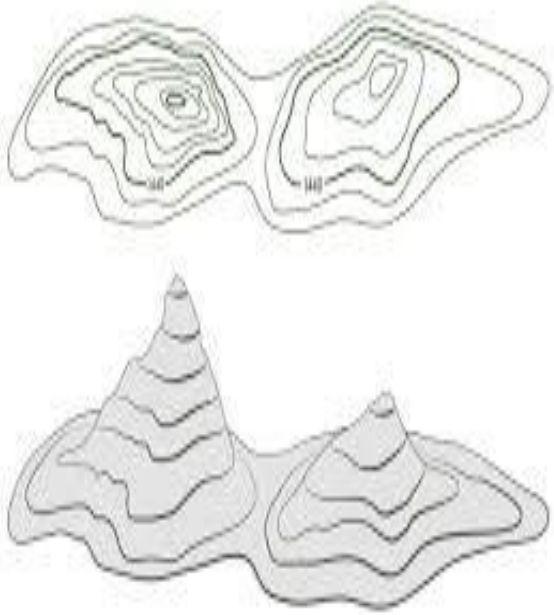


Conventional Signs and Symbols of SOI Maps

Example of symbols

Point features

Tower 

Lighthouse 

Bridge 

Building 

Campsite 

Survey marker 

Linear features

Highway 

Railway 

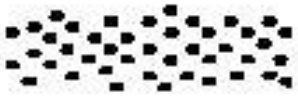
Powerline 

Trail

Boundary 

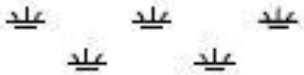
River 

Area features

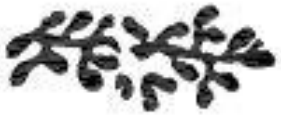
Moraine 

Coral reef 

Lake 

Swamp 

Tidal flat 

Mangroves 

Study of Indian Topographical (SOI) Maps

Study of Indian Topographical (SOI) Maps.

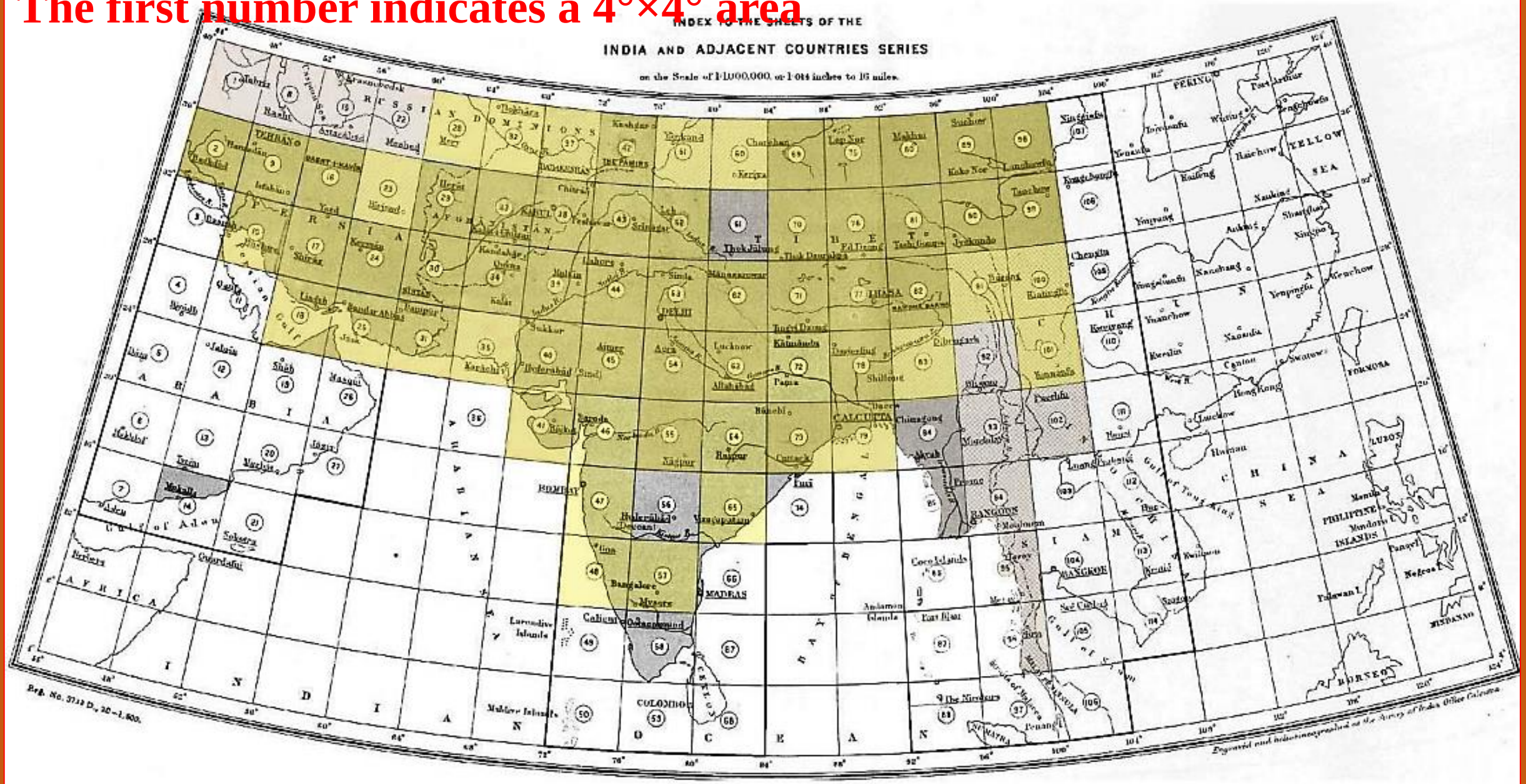
I) Relief

II) Human Settlement

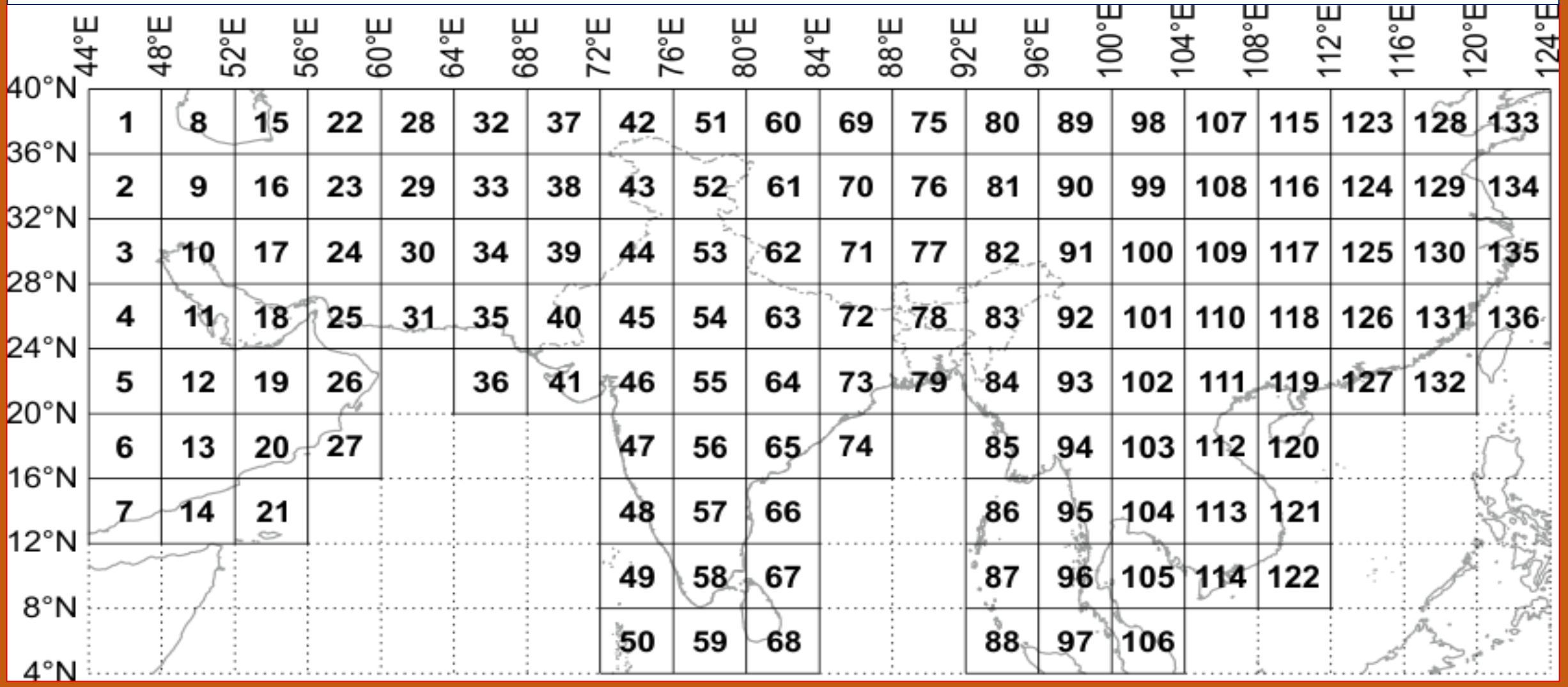
III) Drainage

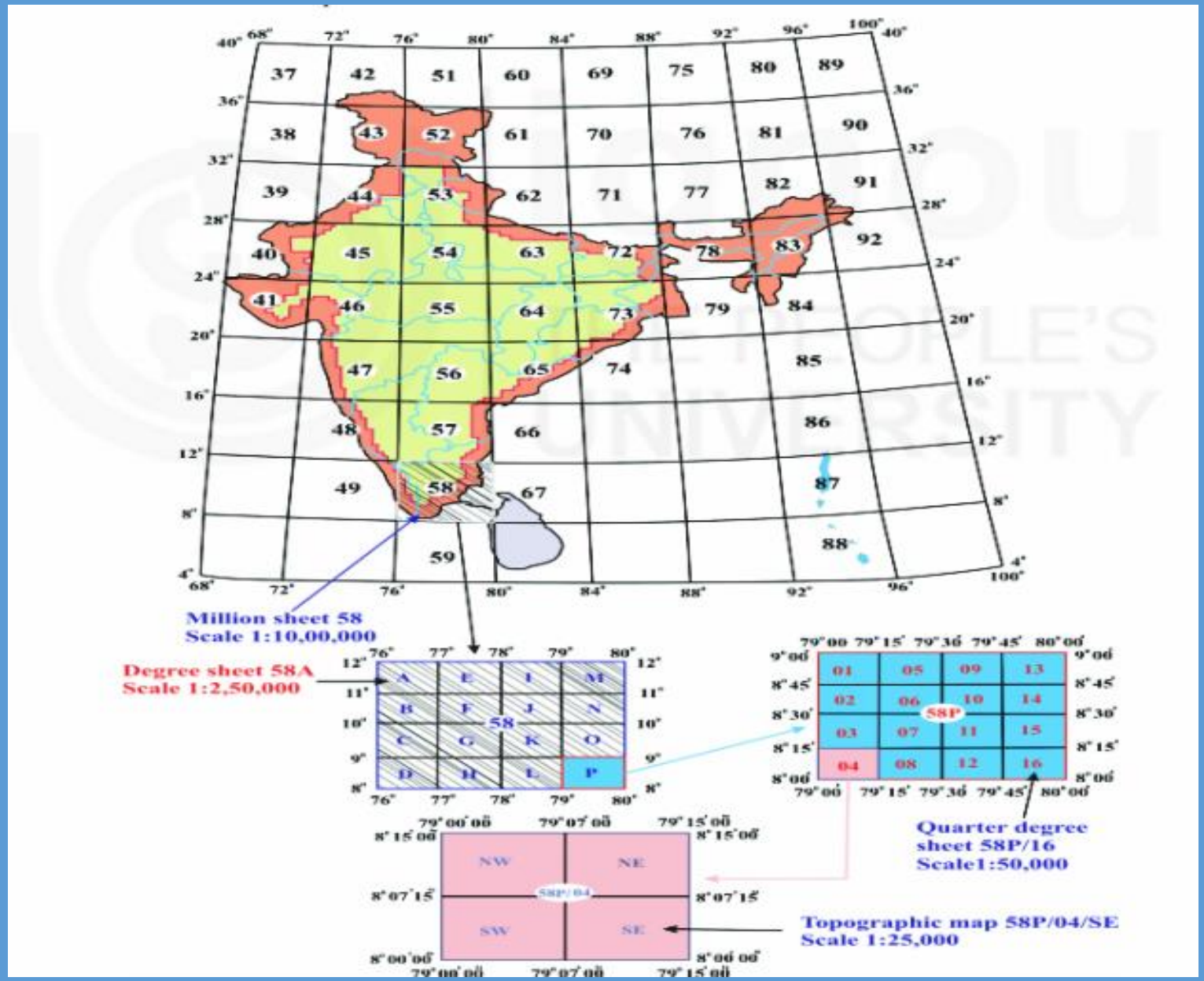
IV) Transportation.

The first number indicates a 4°×4° area



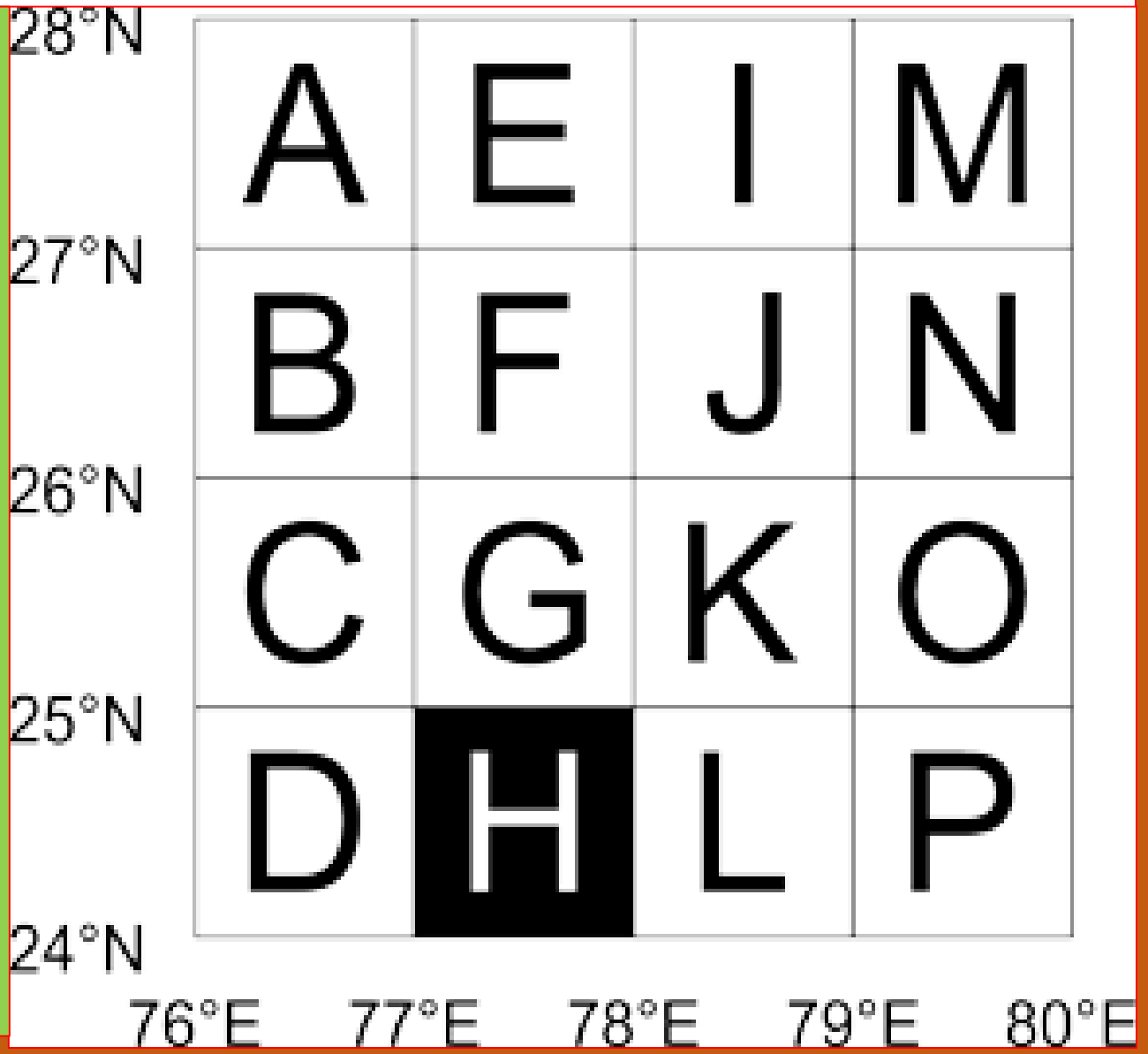
The first number indicates a 4°×4° area, with numbering increasing from north to south and then from west to east, beginning with 1. The north western corner of this 4°×4° grid is at 44°E 40°N, but empty regions are skipped (refer layout below). So sheet with Kalyanpur (77.65489°E 24.11981°N) would be in '54':




Million sheet 58
Scale 1:10,00,000
Degree sheet 58A
Scale 1:2,50,000
Quarter degree
sheet 58P/16
Scale1:50,000
Topographic map 58P/04/SE
Scale 1:25,000

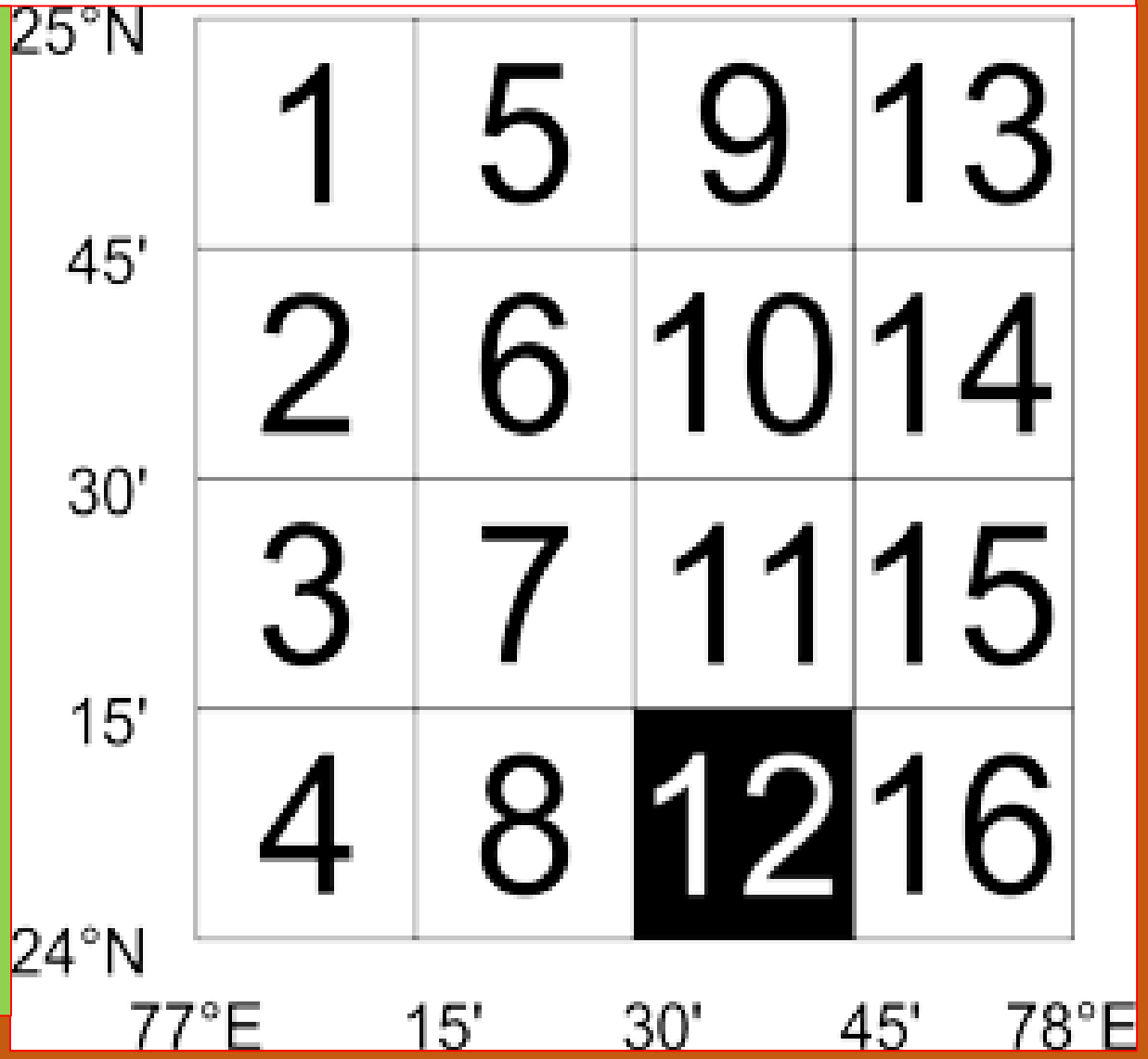
2. Each 4°×4° square is divided into 16 squares of 1°×1°

- Each 4°×4° square is divided into 16 squares of 1°×1°. Each square is indicated serially by an alphabet increasing first towards south and then towards east, starting with 'A'. So sheet for Kalyanpur (77.65489°E 24.11981°N) falls within '54H':



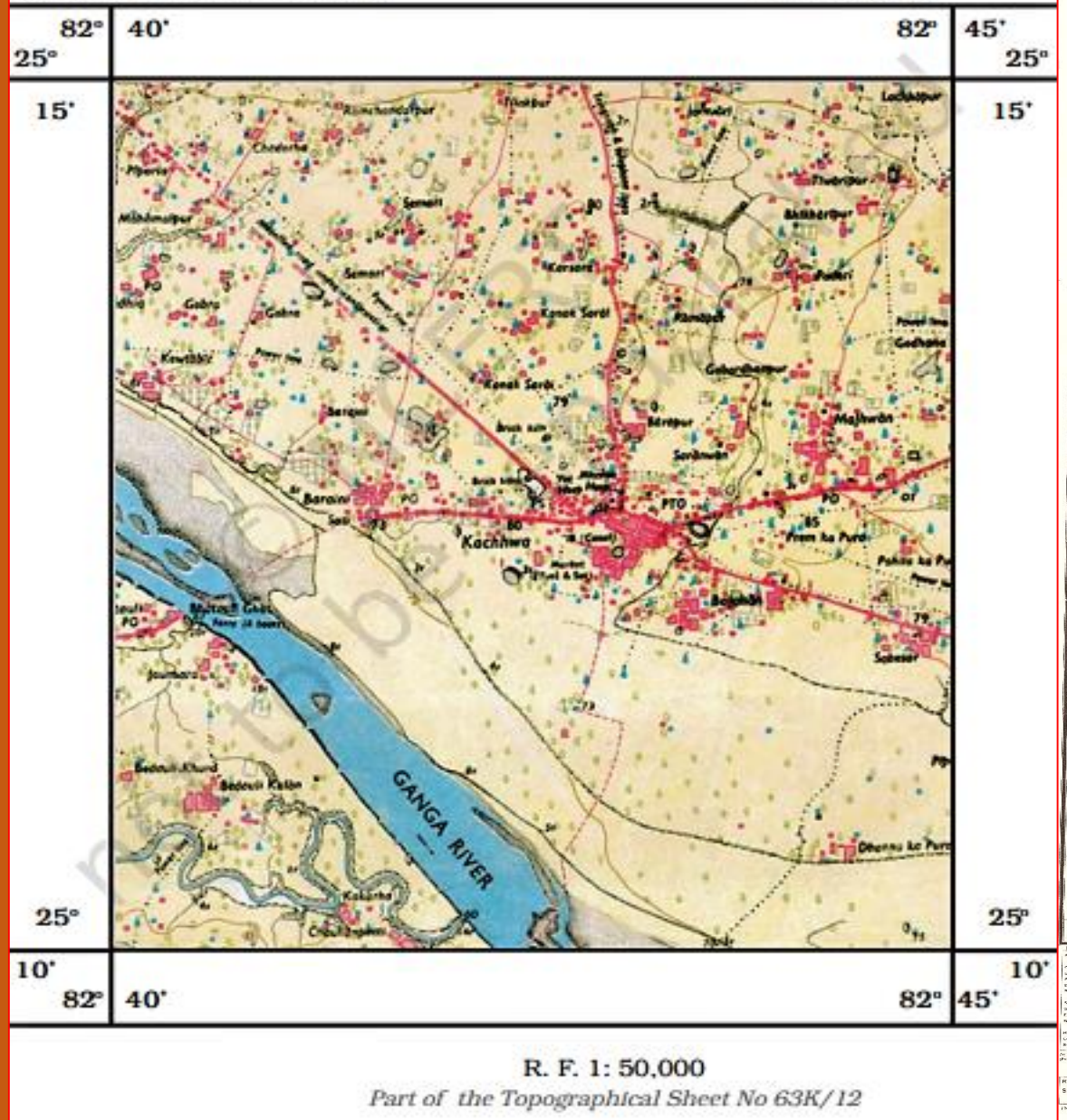
3. Each 1°×1° square is further divided into 16 squares of 15'×15' (15 minutes×15 minutes).

- Each 1°×1° square is further divided into 16 squares of 15'×15' (15 minutes×15 minutes). Each square is indicated serially by a number increasing first towards south and then towards east, starting with '1'. So for the map sheet for Kalyanpur (77°39.293'E 24°7.187'N) would be '54H/12':



Uttar Pradesh

Mirzapur and Varanasi District — Part of 63K/12



R. F. 1: 50,000

Part of the Topographical Sheet No 63K/12

Thank You!