UNIT - I
DISTRIBUTION OF MAPS

DATE / /
PAGE NO.:

DISTRIBUTION OF MAPS

* Introduction :-

Distribution map is a method of representing various physical, economic, social and cultural elements of the earth surface on map. This helps in understanding element's relationship with environment and with each other.

* Methods of Drawing Distribution Maps :-

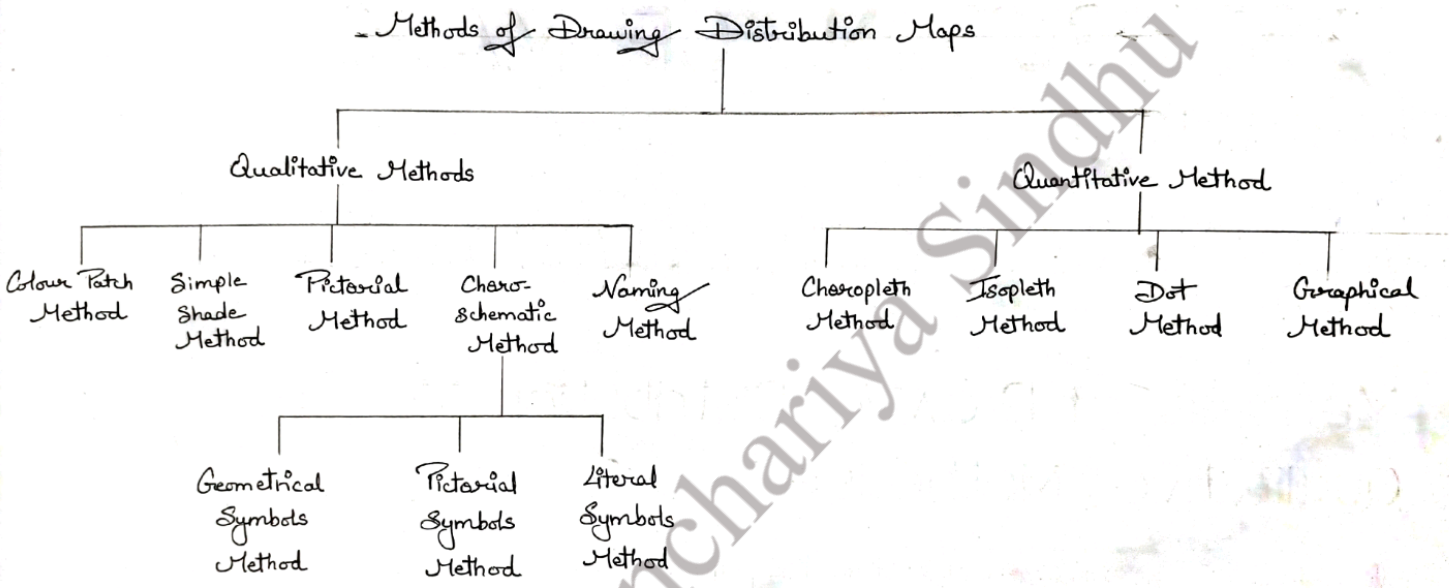
1. Qualitative Methods :-

The distribution map, which generally shows the pattern of non-numeric entities are made with the qualitative method. In these maps, quantity or density are not represented.

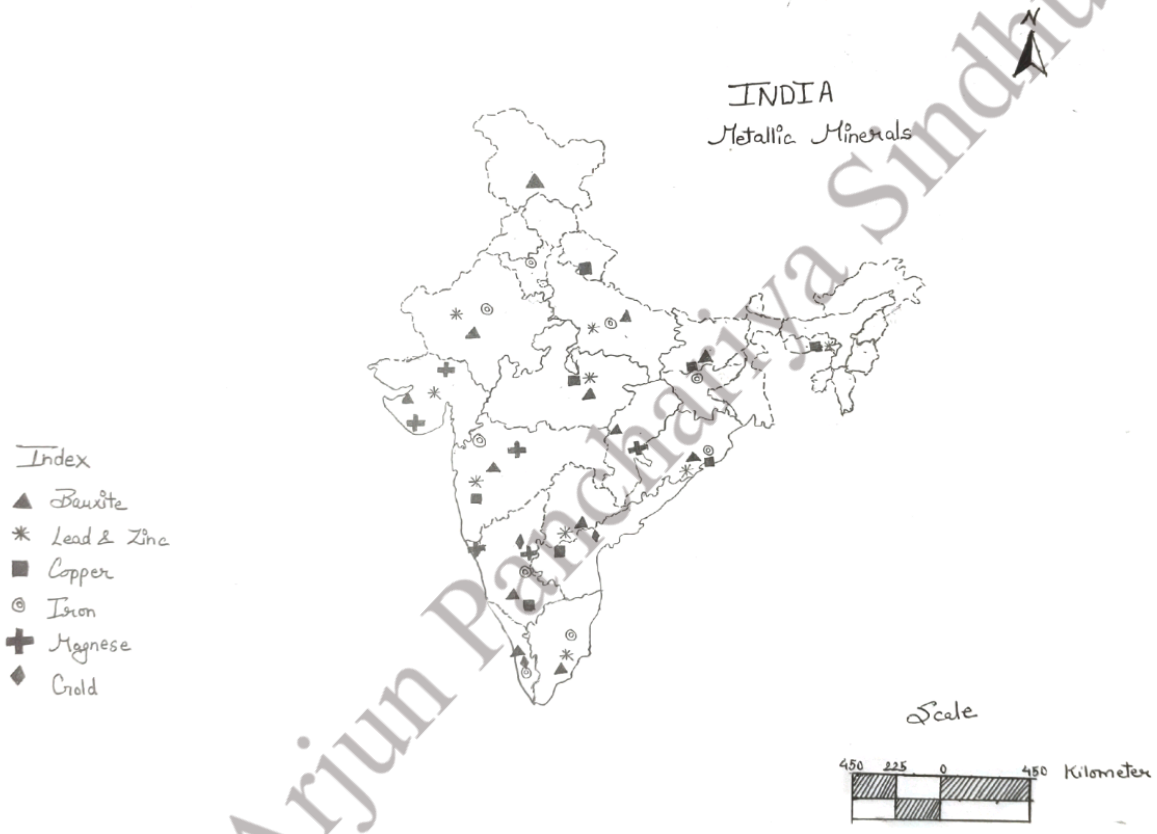
There are five qualitative methods of map making :

1. Choro-chromatic or Colour-patch method
2. Simple Shade Method
3. Pictorial Method
4. Choro-Schematic Method
5. Naming Method

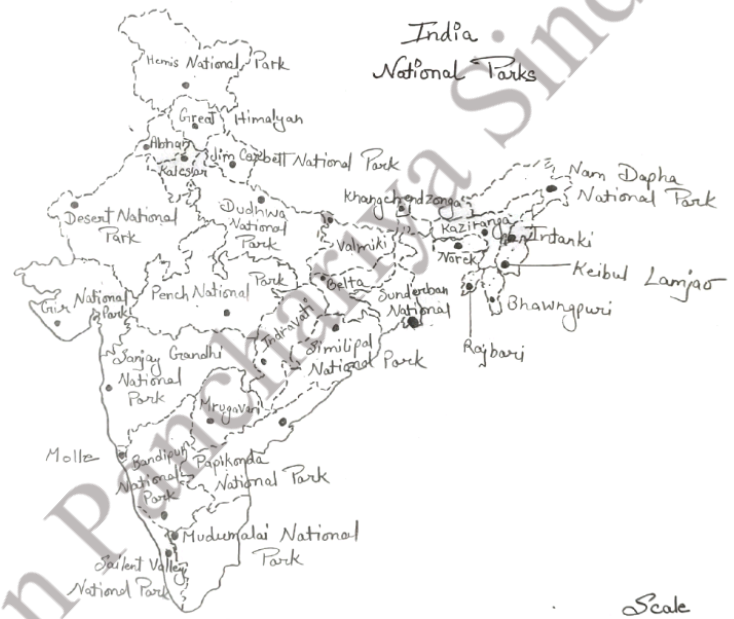
Teacher's Signature.....



CHORO- SCHEMATIC MAP



NAMING MAP



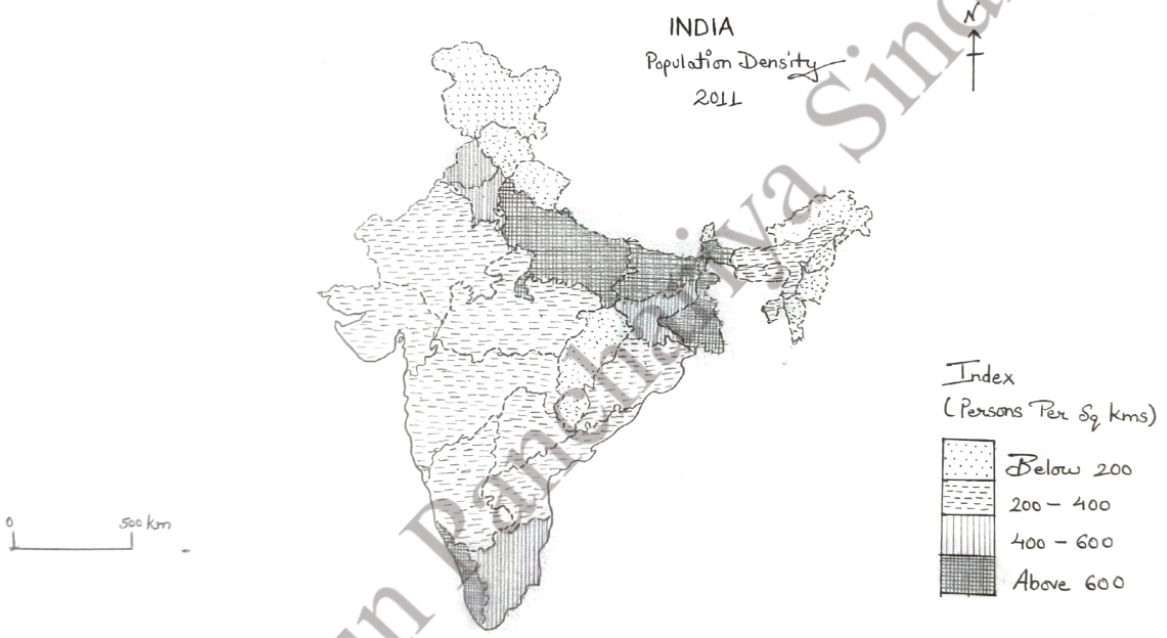
2. Quantitative Methods :-

The maps made with quantitative techniques represent the quality, value and density of the elements in a distribution maps. Apart from this, these methods are also used to show spatial and temporal trends of change and evolution. There has been a lot of development of these methods with increased use of computers to carry out large data analysis and software

* Some important quantitative methods are :-

1. Choropleth Method
2. Isopleth Method
3. Dot Method
4. Diagrammatic Method

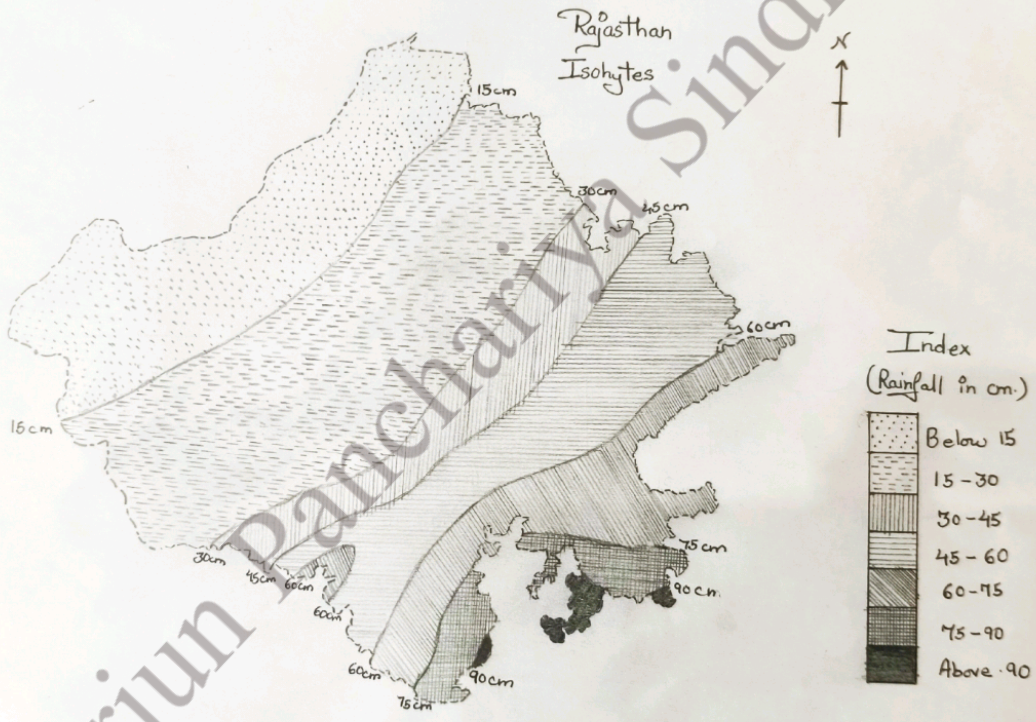
CHOROPLETH MAP



Population Density in India (2011) :- (Descending-order)

S.No.	State	Population Density	S.No.	State	Population Density
1	Bihar	1102	15	Gujarat	308
2	West Bengal	1029	16	Odisha	269
3	Kerela	859	17	Madhya Pradesh	236
4	Uttar Pradesh	828	18	Rajasthan	201
5	Haryana	573	19	Uttarakhand	189
6	Tamil Nadu	555	20	Chhattisgarh	189
7	Punjab	550	21	Meghalaya	132
8	Jharkhand	414	22	Jammu & Kashmir	124
9	Assam	397	23	Himach Pradesh	123
10	Goa	394	24	Manipur	122
11	Maharashtra	365	25	Nagaland	119
12	Tripura	350	26	Sikkim	89
13	Karnataka	319	27	Mizoram	52
14	Andhra Pradesh	308	28	Arunachal Pradesh	17

ISOPLETH MAP



Average Annual Rainfall

DOT MAP

DATE / /
PAGE NO.:

Rajasthan : Districtwise Population (2011)

S.No.	Districts	Population	Actual Number of Dots
1.	Sri Ganganagar	19,69,520	20
2.	Hanumangarh	17,79,650	18
3.	Bikaner	23,67,745	24
4.	Churu	20,41,172	20
5.	Jhunjhunu	21,39,658	21
6.	Alwar	36,71,999	37
7.	Bharatpur	25,49,121	25
8.	~~Alwar~~ Dholpur	25,49,121	12
9.	Karauli	14,58,459	15
10.	Sawai Madhopur	13,38,114	13
11.	Dausa	16,37,226	16
12.	Jaipur	66,63,971	67
13.	Sikar	26,77,737	27
14.	Nagaur	33,09,234	33
15.	Jodpur	36,85,681	37
16.	Jaisalmer	6,72,008	7
17.	Barmer	26,04,453	26
18.	Jalore	18,30,151	18
19.	Sirohi	10,37,185	10
20.	Pali	20,38,533	20
21.	Ajmer	25,84,913	26
22.	Tonk	14,21,711	14
23.	Bundi	11,13,725	11
24.	Bhilwara	24,10,459	24
25.	Rajsamand	11,58,283	12
26.	Dhungarpur	13,88,906	14
27.	Banswara	17,98,194	18
28.	Chittorgarh	15,44,392	15
29.	Kota	19,50,791	20
30.	Baran	12,23,921	12
31.	Jhalawar	14,11,327	14
32.	Udaipur	30,67,549	31
33.	Pratapgarh	8,68,231	9

Teacher's Signature.....

UNIT – II

PLANE TABLE SURVEY

PLANE TABLE SURVEY

* Introduction:-

This survey is done with the help of a plane table i.e. the plane table is a fundamental instrument of this survey. This is a popular survey method for making maps of small areas. This is a popular survey method for making maps of small areas. The major significance of this survey method is that the mapping is done along with the surveying in the field.

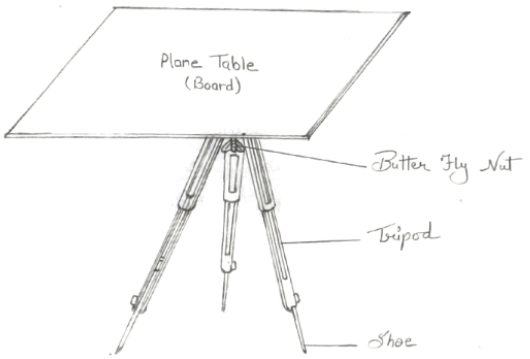
This is the graphical type of survey, in which the measurements of the observed points on the field and their transfer on the paper i.e. mapping on the drawing sheet is conducted simultaneously.

* Surveying Instruments:-

- Plane Table and Tripod stand
- Alidade
- Chain or Tape for measurement
- Spirit level
- Trough (turf) compass
- Ranging Rods
- Plumbing Fork and Plumb Bob
- Drawing essentials - paper, pencil, drawing pins, scale etc.

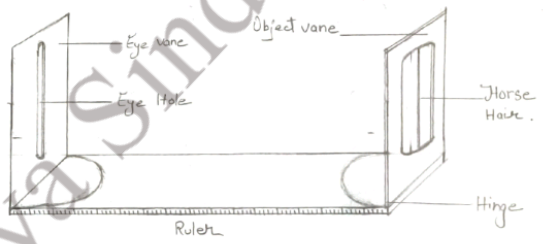
Teacher's Signature.....

1.



Plane Table and Tripod Stand

2.



Alidade

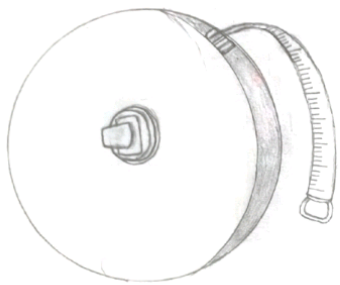
1. Plane Table and Tripod Stand :-

It is a light flat drawing board supported on a tripod and this board can be rotated and fixed in any desired horizontal position. The table top is commonly made up of seasoned pinewood and the size varies from 75 cm × 60 cm to 37.5 cm × 25. The board is supported below with a tripod stand and is about 1.5 meter high and has 3 legs. It is generally made of wood but recently metal tripod stands can be seen being used in the survey. The top of the table tripod stand has screw to establish the plain table.

2. Alidade :-

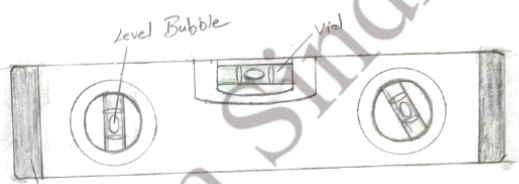
It is used to determine the target point and draw linear rays in the direction of the target on the drawing sheet. Eye vane and object vane are there to accurately determine the target. The ruler is used to draw the line on the drawing sheet mounted on the table. The length of the ruler on the Alidade is 40 - 50 cm, where it's one side called working edge is slanted where divisions are marked. The line depicting the distance of the target is drawn along the edge of the ruler. There are two vanes on both ends of the alidade. There are three holes and a gap line of the Eye vane, which helps in seeing through and object vane has a horse hair or thread stretched longitudinally in the middle of the gap.

3.



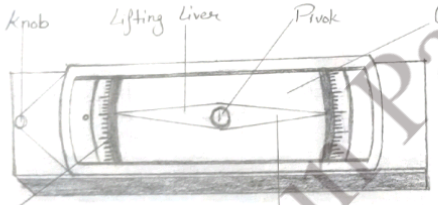
Tape

4.



Spirit level

5



Trough Compass

3. Chain or Tape :-

This is used for measuring distances and special care should be taken in measurement when only one base line is used. Tape is helpful in frequently effect measurement which would be given to oblique intersection and the tape is also of use in talking check measurements.

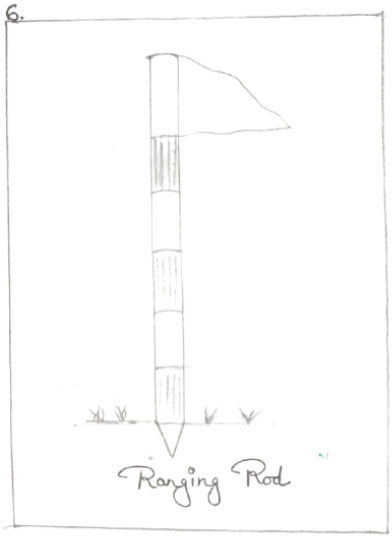
4. Spirit Level :-

Spirit level is commonly used for levelling instrument. It is a wooden rectangular shaped device of 5-10 cm length in which a glass tube filled with spirit is fixed. The glass tube is not fully filled and an air bubble is left so that the liquid can move in it. There are two line along the center of the tube. When the spirit or liquid is in the middle of these two lines, the object is considered levelled to the ground, in this case, the plane table.

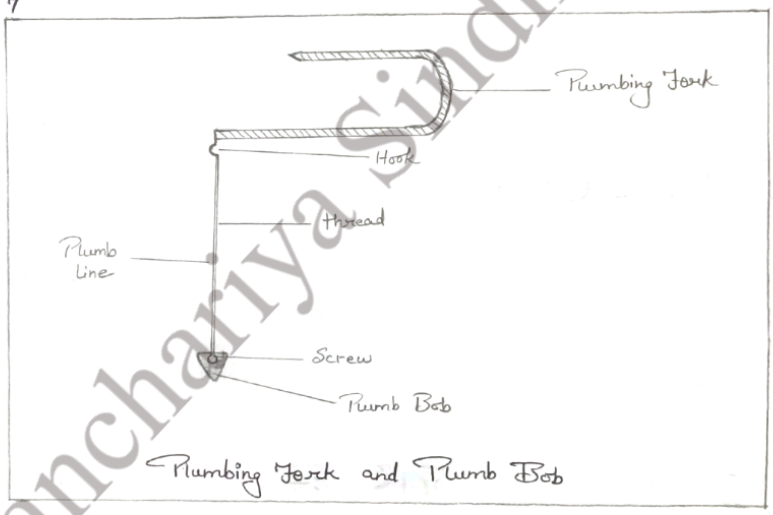
5. Trough Compass :-

It is essentially an a long box with parallel sides and glass lid cover, carrying a magnetic needle pivoted in the center. The end of the needle can be fixed tight by a screw attached to the pivot or it can be loosened to move freely when taking observation. When the freely moving ends of the needly needle come to rest with both ends pointing at zero, the axis of the needle is parallel to the sides of the box and thus lines drawn along the edges would shown the magnetic direction

6.



7



6 Ranging Rods :-

Ranging rods are used to facilitate taking sights for eg. where one has to mark feild boundaries, the edges could be marked by ranging rods.

7. Plumbing Fork and Plumb Bob :-

These instruments are used for centering. There are two ways of centering in a plane table survey First, to mark a point on the surface to of earth to drawing sheet mounted on the table just above the point. Secondly, to center at a point already marked on the drawing sheet to correct the positioning of the plane table. Both of these processes are called "Centering". A plumbing fork is "V" shaped instrument with one pointy end which is installed to a point on the drawing sheet and the other has a hook where a plumb bob is attached with a thread.

Methods of Survey :-

1. Radiation Method
2. Intersection Method
3. Traverse Method

Teacher's Signature.....

Ajaya
DATE / /
PAGE NO.:

UNIT - III

SPEARMAN'S RANK CORRELATION

SPEARMAN'S RANK CORRELATION

* Introduction:-

When statistical series in which the variables under study are not capable of quantitative measurement such as beauty of female, leadership ability, knowledge of person etc, then this method of rank correlation is useful.
This method was developed by British psychologist Charles Edward Spearman in 1904.

In this method ranks are allotted to each element either in ascending or descending order. The correlation coefficient between these allotted two series of ranks is popularly called as "Spearman's Rank Correlation" and denoted by greek letter Rho (ρ).

+ Formula:-

$$\rho \text{ (Rho)} = 1 - \frac{6\Sigma d^2}{n(n^2-1)}$$

Where, ρ = Coefficient of rank correlation
ΣD^2 = Sum of square of rank differences
n = Number of pair of observation

Teacher's Signature.....

* Question 1 :- Calculate co-efficien of rank correlation with the help of following data.

X	32	62	11	13	8	16	45	14	18	9	10	21	33	7	4
Y	35	65	13	14	10	18	51	15	21	11	16	25	32	8	9

S.No.	X	Y	Rank (R_1)	Rank (R_2)	D	D^2
1	32	35	4	3	+1	1
2	62	65	1	1	0	0
3	11	13	10	11	-1	1
4	13	14	9	10	-1	1
5	8	10	13	13	0	0
6	16	18	7	7	0	0
7	45	51	2	2	0	0
8	14	15	8	9	-1	1
9	18	21	6	6	0	0
10	9	11	12	12	0	0
11	10	16	11	8	3	9
12	21	25	5	5	0	0
13	33	32	3	4	-1	1
14	7	8	14	15	-1	1
15	4	9	15	14	+1	1
						$\Sigma D^2 = 16$

$$\rho \text{ (Rho)} = 1 - \frac{6\Sigma D^2}{n(n^2-1)}$$

$$= 1 - \frac{6 \times 16}{15(225-1)}$$

$$= 1 - \frac{96}{15(224)}$$

$$= 1 - \frac{96}{3360}$$

$$= 1 - 0.028$$

$$= 0.972$$

ρ (Rho) = +0.97 (higher correlation)

Teacher's Signature.....