Lab -2 Soil Conservation / Practical

 3th stage Soil and water Dep.

**Rainfall Erosivity (R) Factor:**

**R- factor:** The rainfall erosivity can be defined as the power of rainfall to produce erosion .it is the function of:

1. Rainfall intensity

2. Rain drop size

3. Rainfall depth (amount)

$$Slope=i=\frac{amount of rain water( depth)(mm)}{Duration (time)(hr)}$$

$$Slope=\frac{∆y}{∆x}$$

The unit of intensity i → (cm / hr )

**To estimate rainfall erosivity from rainfall chart:**

1.Subdivide chart into segments of uniform rainfall intensity.

2. Calculate rainfall intensity all portion.

3. Calculate kinetic energy (KE).

4. Calculate KE for each segment.

5. Compute the KE for each storm by summing the KE for different portion.

6. Calculate I30.

I30: maximum rainfall intensity for duration of 30 minute.

 7. Calculate rainfall intensity :

 $R=\frac{KE total \* I30}{100}$

8. Sum R- factor for different storm to obtain the annual value.

9. To compute the long value takes the average for a series of years.

**Kinetic energy (KE):**

**KE= 916+331 log i (inch/hr)**

**KE= 210.3 + 89 log i (cm/hr)**

Example1:

Calculate KE for the storm if you know the rainfall intensity is (3) in/hr?

**KE= 916+331 log i**

 **=916+331\*0.477**

 **=1073.887 ft.tons/acre.In**

Example2:

Calculate KE for the storm if you know the rainfall intensity is (4) in/hr?

**KE= 916+331 log i**

 **=916+331\*0.602**

 **=1115.281 ft.tons/acre.In**

Example2:

Calculate KE for the storm if you know the rainfall intensity is (2) in/hr?

**KE= 916+331 log i**

 **=916+331\*0.301**

 **=1015.631 ft.tons/acre.In**