

WELCOME

TO Adda247

“Quality is more important than quantity. One home run is much better than two doubles.”

# TODAY'S TOPIC

## • INDEX PROPERTIES OF SOIL

Single  
grained  
properties

- GRAIN SHAPE
- GRAIN SIZE

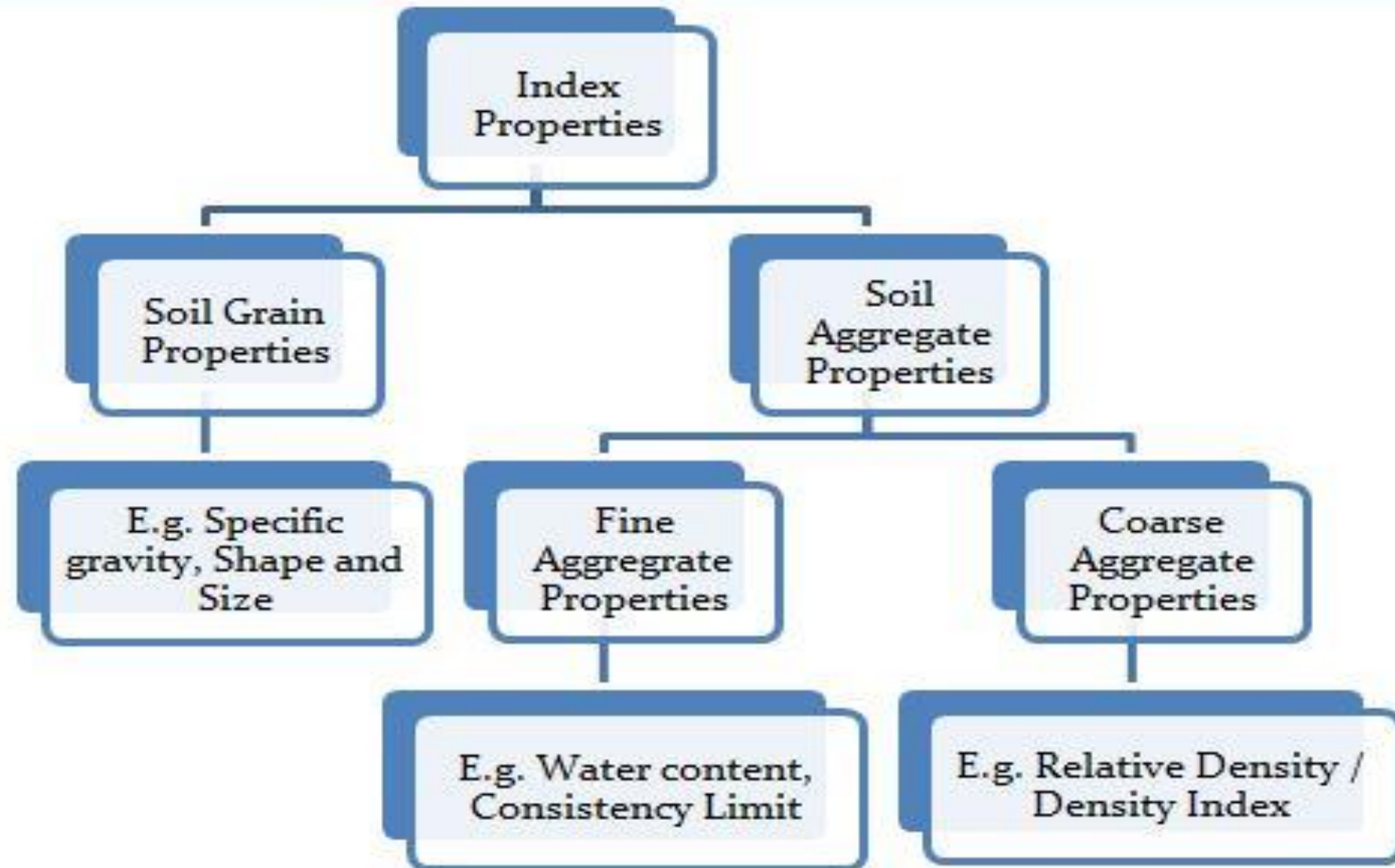
Aggregate  
soil mass  
properties

- ATTERBERG'S  
LIMIT
- THIXOTRPHY etc.

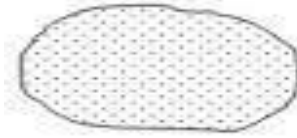
# INDEX PROPERTIES

**Those properties which help to access the engineering behavior of a soil and which assist in determine its classification accurately are termed as index properties .**

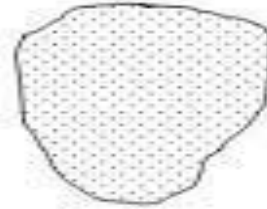
- 1. Individual soil grain**
- 2. aggregate soil mass**



## Grain Shape



Rounded



Sub-Rounded

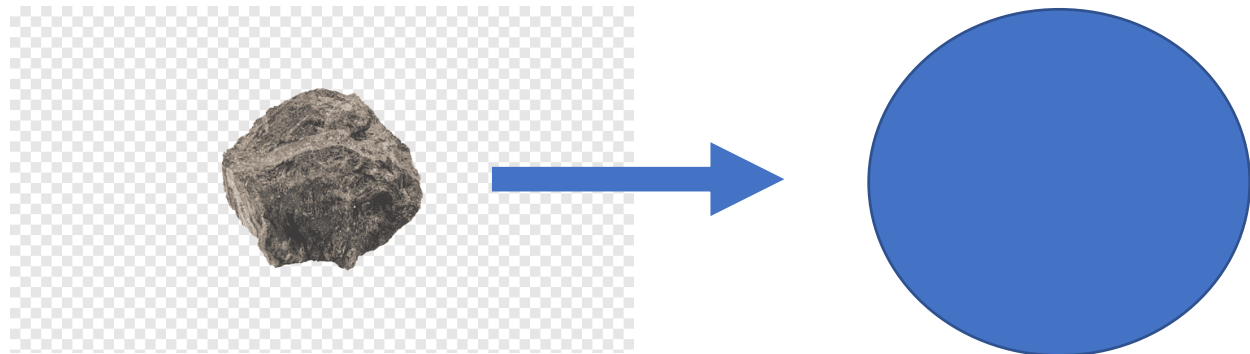


Angular

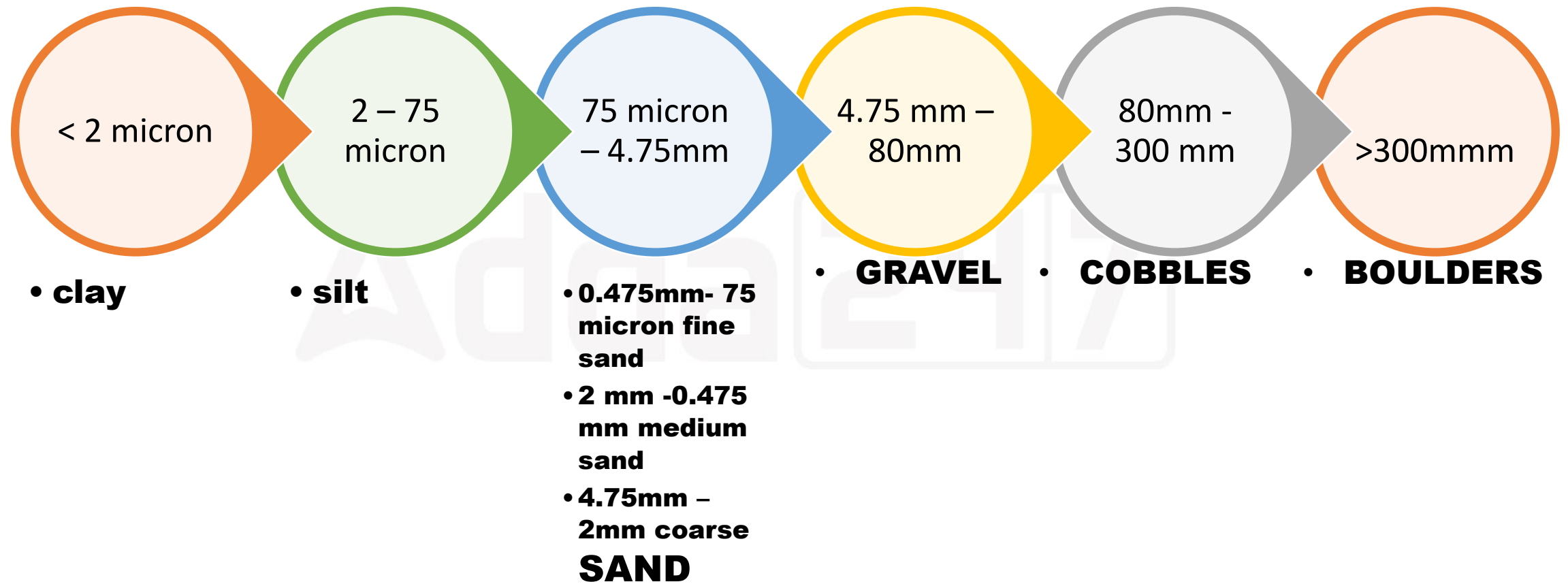


Sub-Angular

## SPHERICITY :-



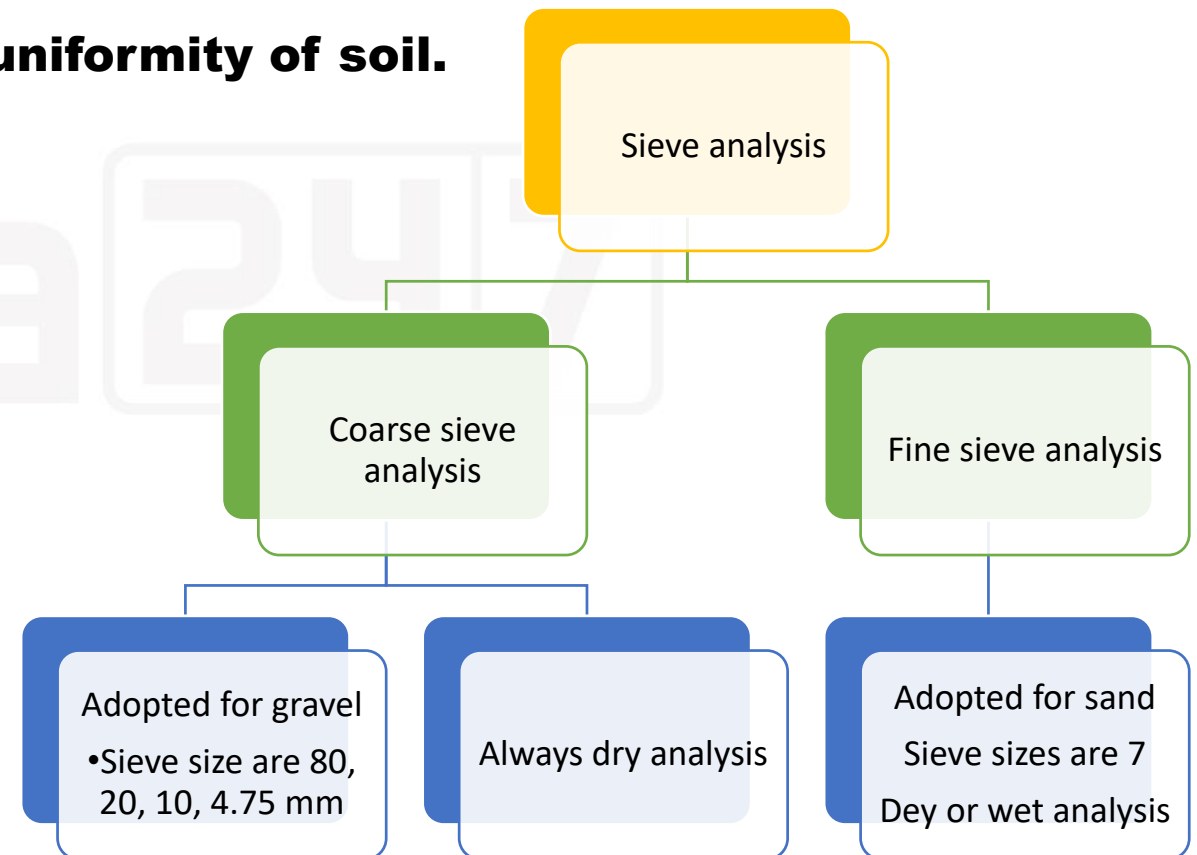
## Different type of soil



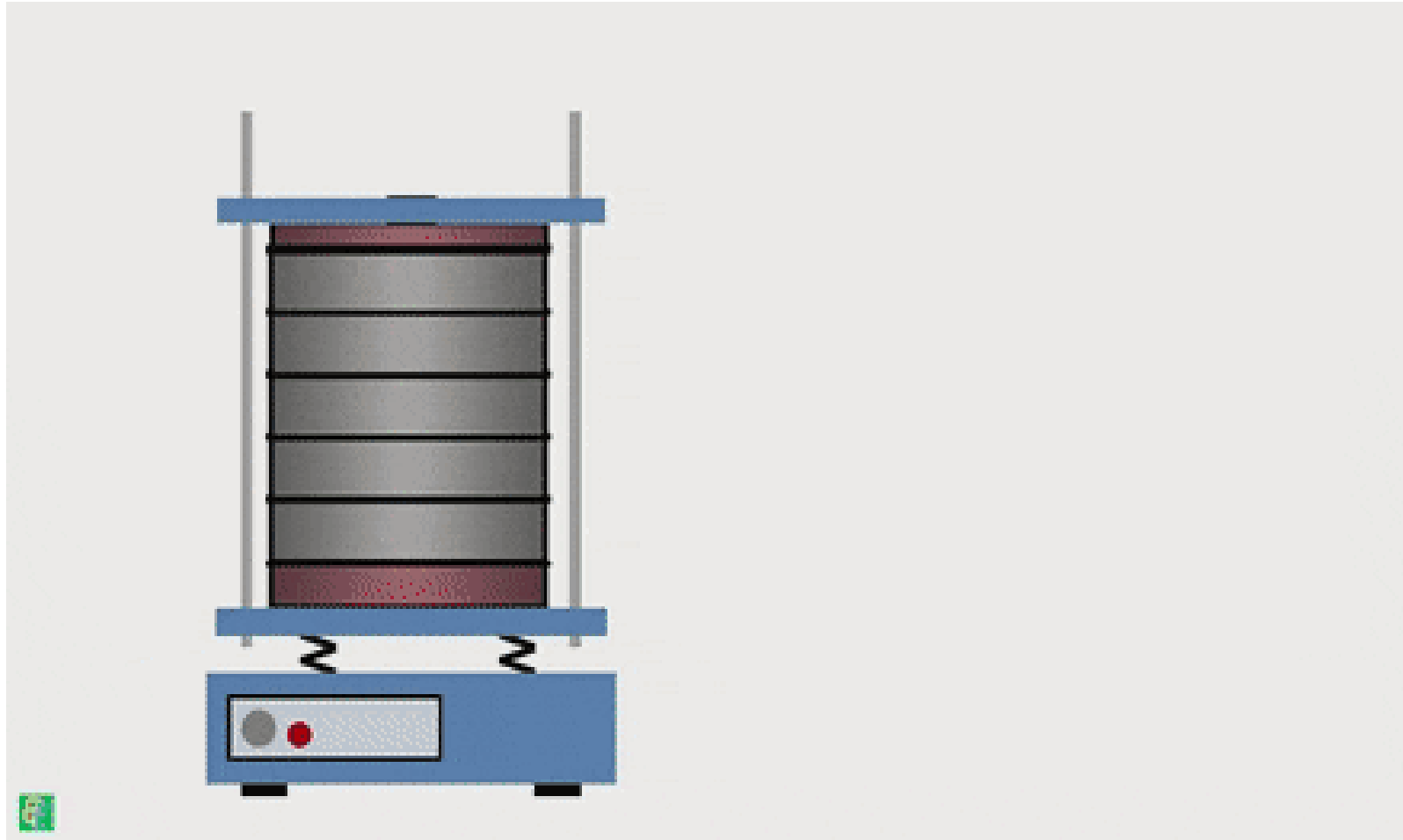
## Grain Size Analysis :-

**Grain size analysis is a method of separation of soils into different fraction based on the particle size. It is called as mechanical Analysis or particle size analysis**

- **It help in determining the gradation and uniformity of soil.**



## Sieve analysis

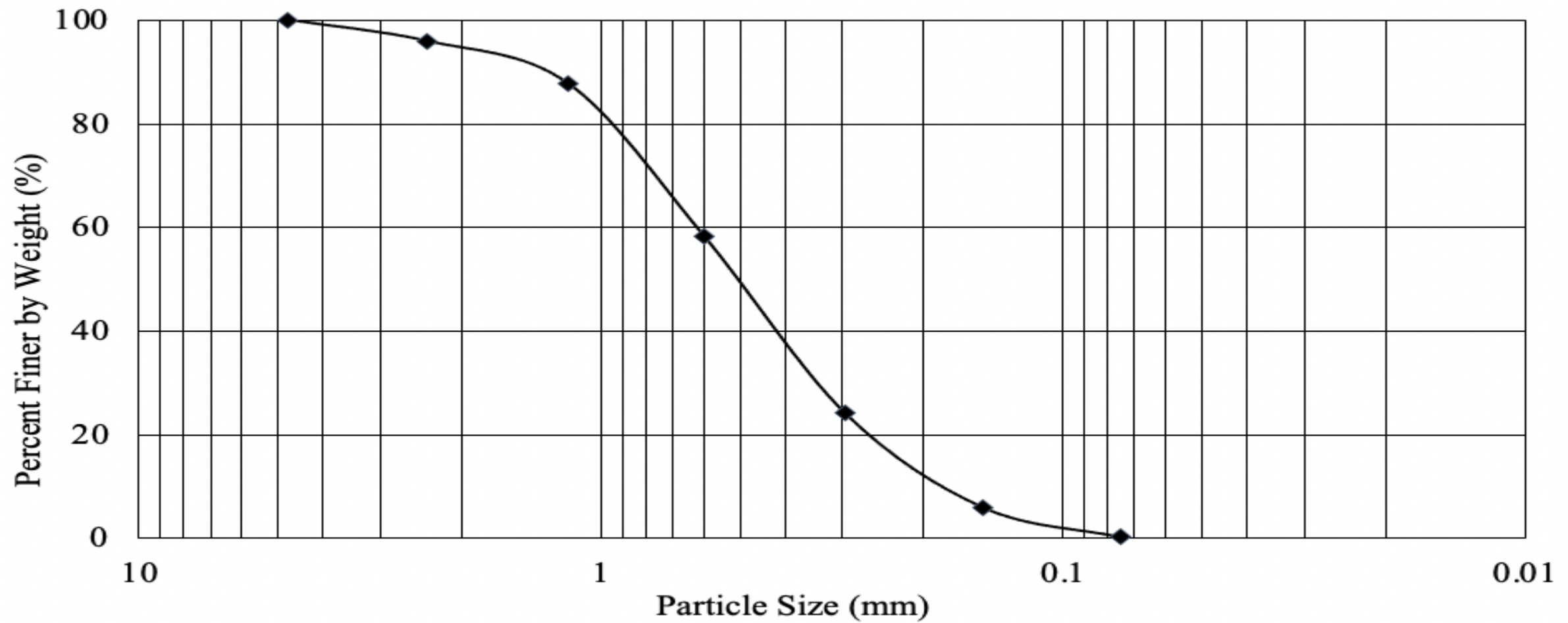




sieve no.	sieve opening, (mm)	mass of soil retained on each sieve, $W_n$ (g)	percentage of mass retained on each sieve, $R_n$	cumulative percent retained, $\sum R_n$	percent finer, $100 - \sum R_n$
4	4.75	154	18.7	18.7	81.3
8	2.36	72	8.7	27.4	72.6
16	1.18	72	8.7	36.1	63.9
30	0.6	141	17.1	53.2	46.8
40	0.425	85	10.3	63.5	36.5
50	0.3	80	9.7	73.2	26.8
100	0.15	149	18.1	91.3	8.7
200	0.075	45	5.5	96.8	3.2
Pan	---	24	2.9	99.7	
		$\Sigma = 822 \text{ g}$ $= W_1$			

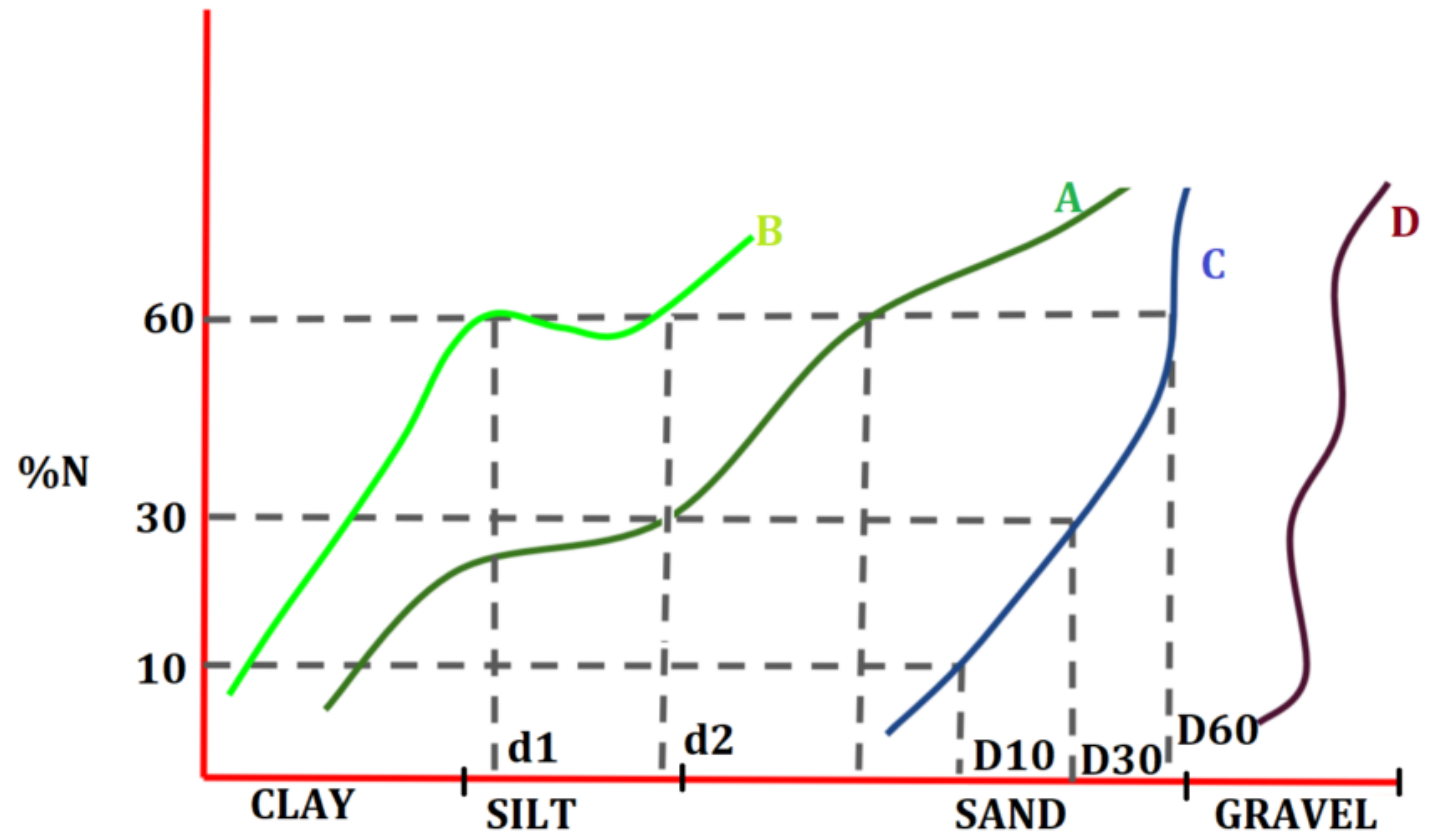
mass of oven dry sample,  $W_t = 824 \text{ g}$

mass loss during sieve analysis,  $= (824 - 822) / 824 * 100 = 0.2 = 2.0\%$



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- Curve A
- Curve B
- Curve C
- Curve D



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**The result of a sieve analysis of a soil are given below**

**Total mass of sample = 900 gm**

IS SEIVE	20 mm	10 mm	4.75 mm	2 mm	1 mm	0.6 mm	425 micron	212 micron	212 micron	150 micron	75 micron
MASS OF SOIL RETAINED (GM)	35	40	80	150	150	140	115	55	35	25	75

**Draw the particle size distribution curve and hence determine the uniformity coefficient and the coefficient of curvature**

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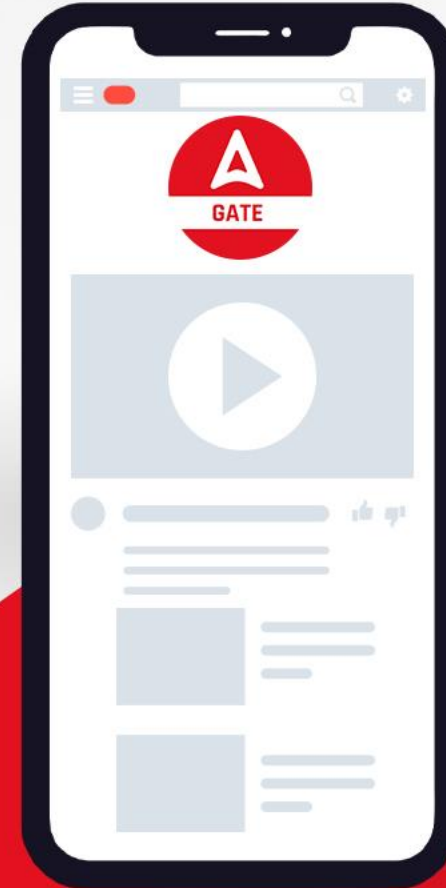
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