

C → It is the position of numerical liquid limit greater than 40 but not exceeding 60.  
(expressed as a whole no. b/w 0 to 20)

u → It is the position of numerical plasticity Index greater than 10 but not exceeding 30.  
(expressed as a whole no. b/w 0 to 20).

15/12/2013

### d) Unified Soil Classification System (USCS) (OR)

### Indian Soil Classification (ISC) System :

In this method, classification of soil is done on the basis of particle size composition, plasticity, characteristics and compressibility of soil.

In this method, soil is classified as :-

- Coarse Grained Soil
- Fine Grained Soil

#### COARSE GRAINED SOILS :

Soil is termed as coarse grained if 50% or more particles have size more than  $75 \mu$ .

Coarse grained soil is further classified as :-

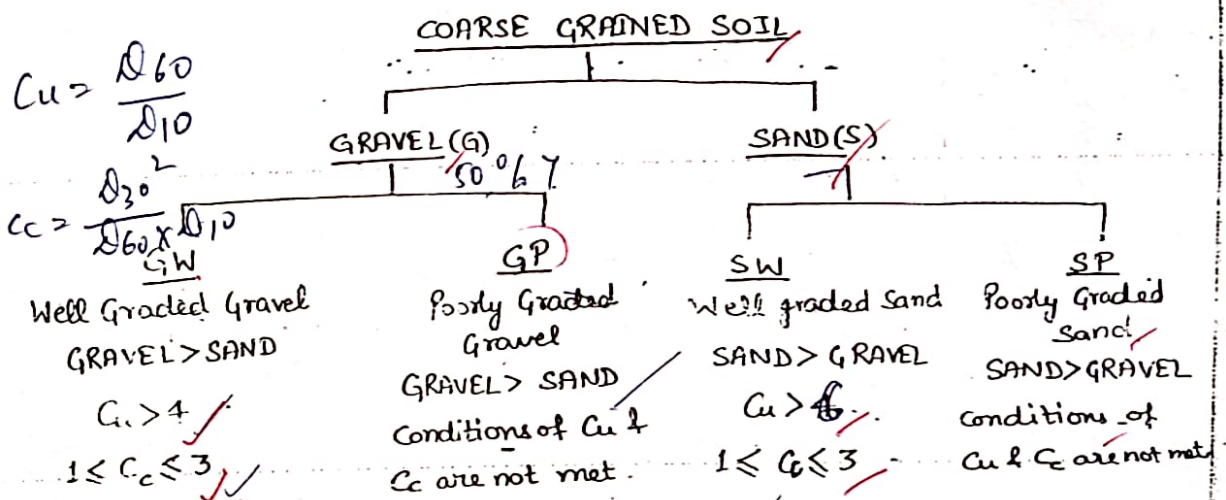
i) Gravel

ii) Sand

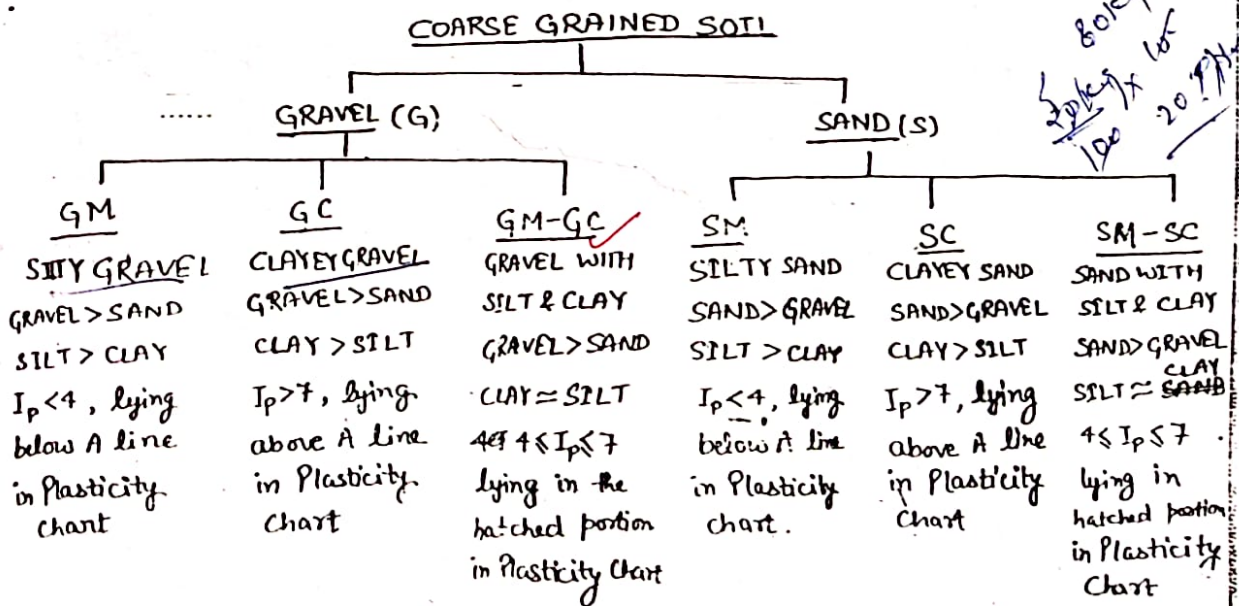
• Coarse grained soil is termed as gravel if 50% or more have coarse grained fraction (soil fraction size  $> 75\mu$  is called coarse grained fraction) retained over 4.75 mm sieve (having size greater than 4.75 mm) or else it is sand.

In this method, coarse grained soil is further classified on the basis of % fineness (percentage of particles passing through  $75\mu$  sieve or having size less than  $75\mu$  is termed as % fineness)

a) % fineness is less than 5%



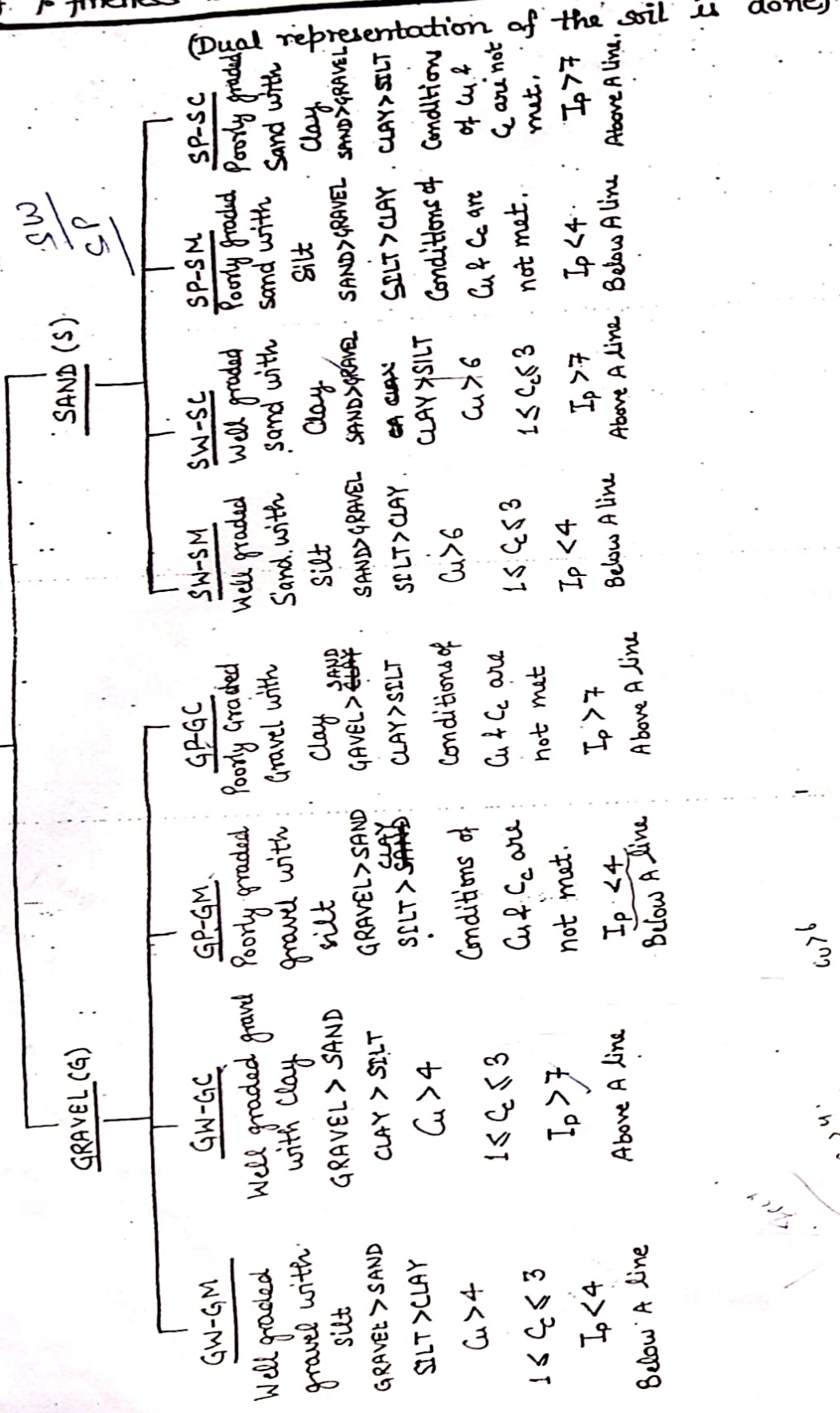
b) If % fineness is greater than 12%



9 If % fineness is between 5% - 12%.

COARSE GRAINED SOIL

5-12  
 5-12 90-95  
 40 90



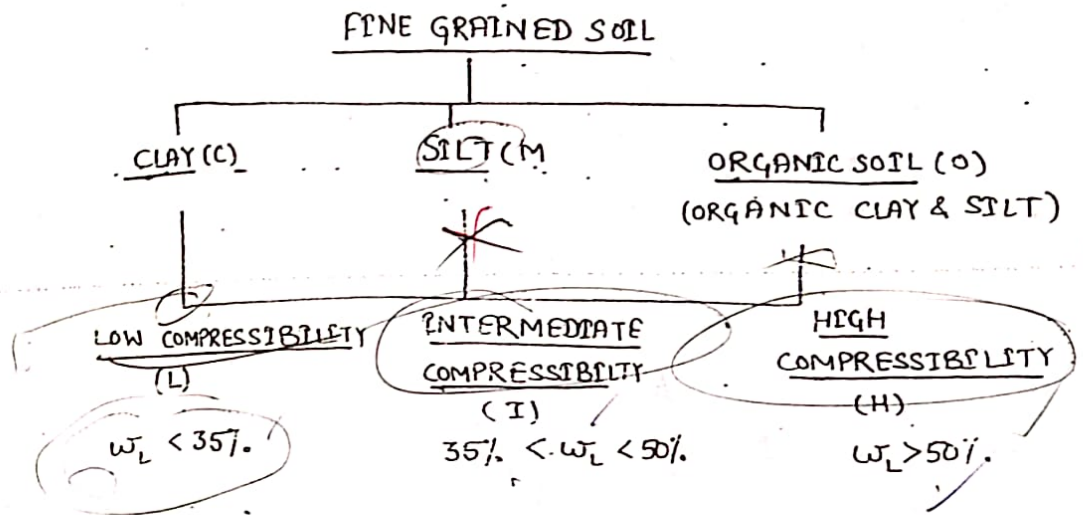
cu > 4  
 1 ≤ Cc ≤ 3  
 Ip < 4  
 Below A line

## FINE GRAINED SOILS :

A soil is termed as fine grained if more than 50% of the soil fraction passes through 0.075 mm sieve or have size less than 0.075 mm.

Fine grained is further classified into three :

- CLAY
- SILT
- ORGANIC SOIL



In this system, fine grained soils are further classified on the basis of the liquid limit as low compressible soil (L), intermediate compressible soil (I) and highly compressible soil (H).

In order to separate, inorganic clays with silt and organic soil, A-CASAGRANDE defined a curve termed as 'A-line' which represents the relationship b/w plasticity index and liquid limit of the soil.

Clay is found to exist above A-line whereas silt and organic soil is found below A-line.

10/7/2021