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Question No # 01

What is difference between standard Proctor Test and standard Penetration Test?

Standard Proctor Test.

- Standard Proctor test is basically a compaction test of soil that is carried out using Proctor's test to understand compaction.
- compaction is the process of desiccation of soil by reducing air voids. compaction of soil is the optimal moisture content at which a given soil type becomes most dense and achieves its maximum dry density by removal of air voids.
- The degree of compaction of a given soil is measured in terms of its dry density. The dry density is maximum at the optimum water content.

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Standard Penetration Test (SPT)

- > The standard penetration test is an in-situ test that comes under the category of penetrometer test.
- > The test is extremely useful for determining the relative density and the angle of shear resistance of cohesion-less soils. It can also be used to determine the unconfined compressive strength of cohesive soil.
- > The standard penetration tests are carried out in borehole. The test will measure the resistance of soil strata to the penetration undergone.
- > A penetration empirical correlation is derived between the soil properties and the penetration resistances.

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Question No # 02

What is classification of soil based on Free swell Index?

On the basis of swell Index, soil are classified as.

Free swell Index	Degree of Expensiveness	Liquid Limit	Plastic Limit	Shrinkage Limit	Degree of severity
< 20	Low	0-50	0-35%	< 17%	Non-critical
20-35	Moderate	40-60%	25-50%	8-18%	Marginal
35-50	High	50-75%	35-65%	6-12%	Critical
> 50	very High	> 60%	> 45%	< 10%	Severe

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Question : No : 03

Why is Permeability Test of Soil Important ?

Importance of Soil Permeability Test:

Soil Permeability test is a laboratory experiment conducted to determine the permeability of soil.

Following Applications illustrate the importance of soil permeability.

- * Permeability influences the rate of settlement of saturated soil under load.
- * The design of earth dams is very much based upon the permeability of the soil used.
- * The stability of slopes and retaining structures can be greatly affected by the permeability of the soil involved.
- * Filter made of soils are designed based upon their permeability.