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Subject : Geotechnical Engineering (Lab)

Section : B

Module : 6<sup>th</sup>

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Question 1: What is the difference between standard proctor test and standard penetration test?

### Standard Proctor Test:

- It determines the compaction of different type of soil
- Its graph is Parabolic in shape
- It gives relation between the moisture content and density of soil.
- It's in situ test which is done to determine the optimal moisture content.
- For the highest value of dry density maximum optimum moisture content is achieved.

### Standard Penetration Test:

- It's carried out in borehole
- It's simple and inexpensive method.
- It's useful to determine the relative density and the angle of shearing resistance of cohesion less soil.
- It is common in situ method to determine different geotechnical properties of soil.
- It can also be used to determine the unconfined or unconfined compressive strength of cohesive soils.

Question 2: what is the classification of soil based on free swell index?

<u>Free Swell index</u>	<u>Degree of Expansion</u>	<u>Plastic limit</u>
< 20	low	0-35%
20 - 38	moderate	25-50%
35 - 50	high	35-65%
> 50	very high	> 45%

Question 3: Why is permeability test for soil important?

Permeability test for soil is important because of the following:

1. It's important to know in engineering whether consolidation occurs so it's observed.
2. In fisheries it's also helpful to know about the fish culture.
3. To check if there is seepage of water into ground.
4. To know whether plant roots are being nourished by water.