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Department: → Civil - engineering

Assignment: → Geo-technical and Foundation

Quiz: → Geo-technical and Foundation engineering.

## Assignment

Q: → Write a geotechnical report of any civil engineering project near to your home town.

Ans: → were determined for better management.

Soil samples were collected two depths i.e 0-15 and 15-45cm respectively from 73 locations in ~~Swat and B2~~ ~~Swat and B2~~ in Bannur during 2020.

Soil sample were analyzed for various soil properties.

⇒ Results showed that soils of ~~the~~ district ~~Swat~~ varied from clay to sandy loam at both depths with saturation percentage from 27.15 to 81.3 and 19.8 to 80.5% in upper and subsurface, respectively.

→ Bulk density of the surface soil ranged from 2.1 to 2.9 cm<sup>3</sup>.

→ Soil pH was found to be alkaline in both the depth. ▣

- Electrical conductivity of these soils showed 16% area as saline soil were found to be slightly strongly calcareous in both the depths.
- Organic matter content of the surface soil showed that 28% samples were medium, whereas 72% were low.
- In District Bunnar, soil texture in both the depths ranged from clay to loamy sand.
- Saturation water percentage of the surface soil and subsoil ranged from 73.98 to 75.81 and 74.37 to 76.8% respectively.
- Bulk density of the surface soil ranged from 1.01 to 1.62 with an average of 1.31  $\text{g cm}^{-3}$ . Soil pH showed alkaline reaction in both the depths.
- According to Ece and SAR, 21% of soil were classified as saline and 4.1% sodic in nature.

## Quiz

Q: →

Ans: → Softwares used in geotechnical engineering: →

→ A high variety of geotechnical software can be found in this category.

→ ~~Geo~~

→ Geotechnical software is defined as software designed especially in order to deal with geotechnical issues as slope stability, seismic analysis foundations etc.

→ The famous software used in the field of geotechnical engineering are motioned below.

1) → 3Deep: → This software is fully integrated with a design software packages for automatic model generation. It is virtual reality software for deep excavations.

2) → Geo 5: → It can be used for Excavation design, shallow foundation and deep foundation design, stability analysis, settlement analysis and for various other field tests.

3) :-> Plaxis :->

PLAXIS 2D, PLAXIS 3D is a finite element package intended for the two dimensional and 3 dimensional analysis of deformation and stability of soil structure, as well as ground water and heat flow, in geo-engineering application such as excavation, foundations, embankments and tunnels.

4) :-> FLAC 3D :->

It is used in advanced geotechnical analysis of soil, rock, and structural support in three dimensions. FLAC 3D is used in analysis, testing and design by geotechnical, civil and mining engineering.

5) :-> EDUSHAKE :->

It is normally used for earthquake and geo technical analysis.

6) :-> MATLAB :->

It users mathematical simulation for analyzing structural and foundation problem using series of arrays.

7) → DEEPX: →

DeepXcau is software program for the design of embedded earth retaining walls with limit-equilibrium and advanced non linear elastoplastic analysis method.

8) → DeepFnd: →

DeepFnd is a powerful interactive software for deep foundation and pile design. Axial, lateral, settlement, structural and geotechnical analysis options.