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Section # A

Program # B.Sc. civil Engineering

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Q.1)

Ans. In Swabi district, soil texture in both the depth ranged from clay to loamy sand. Saturation water percentage of the surface soils and subsoil ranged from 23.98 to 76.81 and 25.37 to 77.81 respectively. According to Ece and SAR, 25% of soil were classified as saline and 4.1 sodic in nature.

Physico-chemical properties of soil in Swabi districts of Khyber Pakhtoon Khwa Pakistan, were determined for better management, soil samples were collected from two depths i.e. 0-15 cm and 15-45 cm respectively from 86 location in Swabi during 2004. Soil samples were analyzed for various soil properties, result showed that soil of Swabi district varied from clay to sandy loam at both depth with saturation percentage from 25.15 to 76.76 and 17.80 to 83.64 in upper surface.

Bulk density of the surface soil ranged from 1.11 to 1.80 g cm^{-3} soil pH was found to be alkaline in both depth. Electrical conductivity of these soil showed 18% area as saline. Saturation water percentage of the surface soil and subsoil ranged from 25.98, 77.81 and 25.80, 80.81 % respectively. Twenty-six percent of the surface soil were low and 74% medium in organic matter.

Software used in Geotechnical Engineering

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

Geotechnical software is defined as software designed especially in order to deal with geotechnical issues such as slope stability seismic analysis foundation etc. The

famous software used in the field of geotechnical engineering are mentioned below.

① 3DEEP ~

The software is fully integrated with a design software package for automatic model generation. It is a virtual reality software for deep excavation

② GEO-5

It can be used for excavation design shallow foundation and deep foundation design stability analysis settlement analysis for various other field tests.

(3) PLAXIS.

PLAXIS 2D, Plax is 3D is finite element package. intended for the two dimensional and 3 dimensional analysis of deformation and stability of Soil Structure.

(4) FLAC3D :-

It is used in Advanced geotechnical analysis of soil rock and structure support in three dimension. FLAC3D is used in analysis testing and design by geotechnical, civil and mining engineers.

(5) EDSHAKE :-

It is normally used for earthquake and geo technical analysis.