



SHANTILAL SHAH ENGINEERING COLLEGE, BHAVNAGAR
APPLIED MECHANICS DEPARTMENT

Assignment No:

Date:

Sub Code

GEOTECHNICS

Title of Subject

#	Questions
1	Explain sedimentation analysis.
2	Explain type of soil structure.
3	Difference between liquid limit and plastic limit.
4	Explain activity, sensitivity and Thixotropy of soil.
5	Explain Type of soil water.
6	Describe Darcy's law.
7	Explain Factors affecting permeability.
8	Derive permeability constant for falling and constant head permeability test.
9	Explain flow net.

SOIL CONSISTENCY

1	A soil sample has a liquid limit 60%, plastic limit 20% and flow index 40 %. Natural water content of soil is 20%. Plasticity Index, Liquidity Index, Consistency Index, Toughness Index.										
2	A soil has liquid limit 30% and plastic limit of 25%. Determine its Toughness Index if its flow index is 15%. Also find the liquidity index and relative consistency of the soil if it has a natural water content of 25%.										
3	A test for the determine the liquid limit gave the following observation. Plot the flow curve and determine liquid limit and flow Index. <table border="1" style="margin-left: auto; margin-right: auto;"><tbody><tr><td>No. of blow(N)</td><td>17</td><td>23</td><td>30</td><td>35</td></tr><tr><td>Water content %</td><td>55</td><td>35</td><td>18</td><td>11</td></tr></tbody></table>	No. of blow(N)	17	23	30	35	Water content %	55	35	18	11
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Date of Submission - SOIL CONSISTENCY

A - Division - 25/09/2018

B - Division - 27/09/2018



SHANTILAL SHAH ENGINEERING COLLEGE, BHAVNAGAR
APPLIED MECHANICS DEPARTMENT

Assignment No:	06	GEOTECHNICS	
Date:	06/09/2018		
Sub Code	2130606	Title of Subject	Geotechnics & Applied Geology

SOIL WATER	
1	Determine total stress, neutral and effective stress at depth of 16m below ground level for the following condition: Water table is 3m below ground level $e = 0.72$, $G = 2.68$ average water content of the soil water table is 8 %.
2	In a 10 m thick sand deposit, ground water table lies at 4.0 m depth below the G.L. Sand deposit has $\gamma_t = 18 \text{ KN/m}^3$ & $\gamma_{sa} = 20 \text{ KN/m}^3$. Compute effective stress values at depth of 2.0 m, 4.0 m and 6.0 m below G.L.
3	Calculate the maximum capillary rise in a tube of 0.5mm diameter. Take surface tension = 0.076 N/m and unit weight of 9810 N/m ³ .
4	A granular soil deposit is 7 m deep over an impervious layer. The ground water table is 4 m below the ground surface. The deposit has a zone of capillary rise of 1.2 m with a saturation of 50%. Plot the variation of total stress, pore water pressure and effective stress with the depth of deposit. Take $e = 0.6$, $G = 2.65$.

Date of Submission - SOIL WATER

A - Division - 25/09/2018

B - Division - 27/09/2018



SHANTILAL SHAH ENGINEERING COLLEGE, BHAVNAGAR
APPLIED MECHANICS DEPARTMENT

Assignment No: 07

Date: 06/09/2018

Sub Code 2130606

GEOTECHNICS

Title of Subject Geotechnics & Applied Geology

PERMEABILITY & SEEPAGE

1	A sample of soil tested for a permeability have the following details: i) Diameter of soil specimen= 100 mm ii) Diameter of stand pipe= 12 mm iii) Length of soil specimen= 125 cm iv) Initial head= 120 cm v) Final head= 50 cm vi) Time for water head to fall= 250 seconds.
2	Calculate coefficient of permeability of a soil sample 6 cm height, 50 cm ² in cross section area, if a quantity of water equal to 430 ml passed down in 10 min. under an effective constant head of 40 cm.
3	A coarse-grained soil has a void ratio of 0.78 and specific gravity as 2.67. Calculate the critical gradient at which quick sand condition will occur.
4	A horizontal stratified soil deposit consists of three uniform layers of thickness 6 m, 4 m and m respectively. The permeability of these layers are 8×10^{-4} cm/s, 52×10^{-4} cm/s and 6×10^{-4} cm/s. Find the effective average permeability of the deposit in the horizontal and vertical direction
5	A sand sample of 35 cm ² cross-sectional area and 20 cm long was tested in a constant head permeameter under a head of 60 cm, the discharge was 120 ml in 6 min. The dry weight of sand is 1120 g and $G = 1.68$.

Date of Submission - PERMEABILITY & SEEPAGE

A - Division - 25/09/2018

B - Division - 27/09/2018



SHANTILAL SHAH ENGINEERING COLLEGE, BHAVNAGAR
APPLIED MECHANICS DEPARTMENT

Assignment No: <input type="text" value="08"/>	APPLIED GEOLOGY
Date: <input type="text" value="06/09/2018"/>	
Sub Code <input type="text" value="2130606"/> Title of Subject <input type="text" value="Geotechnics & Applied Geology"/>	
#	Questions
1.	Describe Scope of geology.
2.	Describe Branches of geology.
3.	Application of geology in civil Engineering.
4.	Explain Weathering process.
5.	Write Short note of Earthquake.
6.	Explain Physical properties of mineral.
7.	Enlist Classification of rocks and explain briefly.
8.	Explain metamorphism.
9.	Describe Geological time scale.
10.	Describe Strike & Dip.
11.	Describe Fold & fault.
12.	Explain joints.
13.	Explain tunneling in Rock.
14.	Geological criteria for site selection of dam.
15.	Explain Remote sensing & GIS

Date of Submission

A - Division - 02/10/2018

B - Division - 02/10/2018