PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
MID TERM EXAMINATION - APR 2023

Semester : Semester IV - 2021
Course Code : CIV2015
Course Name : Sem IV - CIV2015 - Geotechnical Engineering
Program : CIV

Date : 17-APR-2023
Time : 11:30AM - 1PM
Max Marks : 50
Weightage : 25%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS   (3 X 5 = 15M)

1. Soil may be considered as an incidental material obtained from the geologic cycle which goes on continuously in nature. Explain the geological cycle with a neat diagram.

(CO1) [Knowledge]

2. Soil exploration report from a site gave the follwing data. The moisture content of the soil is 12% and its bulk density is 1.6 g/cc. Find dry density, void ratio and degree of saturation of the soil. Assume specific gravity of soil as 2.6.

(CO1) [Knowledge]

3. A soil from a project site at Jaynagar was investigated. The volume of soil in the container is 100cc and mass of 190 g. On oven drying for 24 hours, the mass is reduced to 160 g. If the specific gravity of grains is 2.68, determine water content, voids ratio and degree of saturation of soil.

(CO1) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS   (2 X 10 = 20M)

4. A soil sample was taken from a site near Presidency University and liquid limit test was performed. The table below shows the results of the test, Determine liquid limit and flow index of the soil from the data.

No of blows (N)	38	27	20	13
water content (%)	47.5	49.5	51.9	53.9

(CO1) [Comprehension]

5. Soil is formed by disintegration of rocks by physical and chemical process. Explain chemical process of soil formation.

(CO1) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION (1 X 15 = 15M)

6. A sieve analysis test was conducted for the soil sample at a project site at Malleshwaram. The mass of soil sample taken for the test is 1000g. The results of the test are given below. Draw the grain size distribution curve and determine Cc (coefficient of curvature) and Cu (Coefficient of uniformity) of the soil sample.

BIS SIEVE SIZE (mm)	4.75	2	1	0.6	0.425	0.3	0.212	0.150	0.075	pan
Mass retained on each sieve (g)	85	140	160	142	118	82	56	35	160	57

(CO1) [Application]