Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – March 2026

Date: 11-03- 2026 **Time:** 11.45am to 01.15pm

School: SOE	**Program:** B.Tech CIV	
Course Code : CIV2512	**Course Name:** Geotechnical Engineering	
Semester: IV	**Max Marks**: 50	**Weightage**:25%

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Marks	**28**	**22**	**-**	**-**	**-**

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **5Q x 2M=10M**

1	List any four major soil deposits of India.	**2 Marks**	**L1**	**CO1**
2	Define Water content (w) or Moisture content and Degree of Saturation (S).	**2 Marks**	**L1**	**CO1**
3	Compute degree of saturation of soil if water content is 20%, voids ratio is 0.9 and specific gravity G is 2.7.	**2 Marks**	**L2**	**CO1**
4	Explain specific gravity of soil solids.	**2 Marks**	**L2**	**CO1**
5	State the group symbol for Well Graded Gravel and Medium Compressible Silt.	**2 Marks**	**L2**	**CO2**

Part B

Answer the Questions. **Total Marks 40M**

6.	**a.**	Explain consistency limits and its various types.	**10 Marks**	**L2**	**CO1**

<table>
<tr><td></td><td>b.</td><td>Establish the relationship between voids ratio (e), Submerged unit weight (γ_{sub}) and specific Gravity (G).</td><td>10 Marks</td><td>L2</td><td>CO1</td></tr>
<tr><td colspan="6">Or</td></tr>
<tr><td>7.</td><td>a.</td><td>The following data gives the results of liquid limit of soil. Calculate Liquid limit, Flow Index of the soil.
<table>
<tr><td>No of blows (N)</td><td>34</td><td>24</td><td>18</td><td>12</td></tr>
<tr><td>Water content (%)</td><td>44.6</td><td>49.4</td><td>51.4</td><td>55.6</td></tr>
</table></td><td>10 Marks</td><td>L3</td><td>CO1</td></tr>
<tr><td></td><td>b.</td><td>A project site at Yelahanka needs its index property to be evaluated. It was found that specific gravity of sand particles is 2.67 and the in-situ percentage voids of a sand deposit is 34%. For determining density index, dried stratum was filled loosely in 1000cc mould and was then vibrated to give a maximum density. The loose dry mass in the mould was 1610 g and dense dry mass at maximum compaction was found to be 1980 g. With this data compute Density Index of the soil.</td><td>10 Marks</td><td>L3</td><td>CO1</td></tr>
<tr><td>8.</td><td>a.</td><td>Classify the following soils as per the data given below and draw plasticity chart.
i) Liquid Limit-40% and Plastic Limit-22%
ii) Liquid Limit-20% and Plastic Limit-14%
iii) Passing 4.75 mm sieve 70%, Passing 75 micron sieve-8%, Uniformity coefficient-7, Coefficient of curvature-3.</td><td>10 Marks</td><td>L3</td><td>CO2</td></tr>
<tr><td></td><td>b.</td><td>Explain structure of soil and its types.</td><td>10 Marks</td><td>L2</td><td>CO2</td></tr>
<tr><td colspan="6">Or</td></tr>
<tr><td>9.</td><td>a.</td><td>The results of a sieve analysis are given below. Total mass of soil sample=1000 grams. Draw the particle size distribution curve and hence calculate Cu and Cc.
<table>
<tr><th>Sieve size (Particle size D)</th><th>Mass retained on each sieve (grams)</th></tr>
<tr><td>4.75 mm</td><td>148</td></tr>
<tr><td>2 mm</td><td>130</td></tr>
<tr><td>1 mm</td><td>120</td></tr>
<tr><td>600 microns</td><td>110</td></tr>
</table></td><td>10 Marks</td><td>L3</td><td>CO2</td></tr>
</table>

		425 microns: 100 600 microns: 98 425 microns: 86 300 microns: 76 212 microns: 60 150 microns: 55 75 microns: 17 Pan: 0			
	b.	Three types of soil were found at a construction site in Rajajinagar. The results of the sieve analysis is given below. Classify the soil according to Indian soil classification system, give the group symbol for the soil and also draw the Plasticity Chart. i) Soil A - Percentage passing 75 micron sieve=10, Percentage retained on 4.75 mm sieve = 90, Coefficient of Uniformity (Cu) =5 and Coefficient of Curvature (Cc) =2. ii) Soil B - Percentage passing 75 micron sieve=90, Percentage retained on 4.75 mm sieve = 10, Coefficient of Uniformity (Cu) =7 and Coefficient of Curvature (Cc) =2.	**10 Marks**	**L3**	**CO2**