


CIVIL ENGINEERING LABORATORY-II

Sl. no	Name of the experiment	Photo	Apparatus required
1.0 TESTS ON SOIL :			
1.1	Determination of Specific gravity of Soil by Pycnometer /Density bottle.		<ol style="list-style-type: none"> 1. Pycnometer of about 1 litre capacity 2. Weighing balance, with an accuracy of 1g. 3. Glass rod 4. Vacuum pump 5. Oven
1.2	Determination of Field Density of Soil by Core Cutter Method.		<ol style="list-style-type: none"> 1. Core Cutter apparatus consisting of steel cutter, 10 cm (4") in diameter and 12.7 cm (5") high. 2. Steel Dolley / collar, 2.5 cm high. 3. Rammer. 4. Straight edge. 5. Knife. 6. Balances sensitive to 1 gm & 0.1 gm. 7. Moisture containers. 8. Oven.
1.4	Wet mechanical analysis using pipette method for clay and silt.		
1.5	(a)Determination of Liquid Limit by soil by Casagrande's apparatus.		<ol style="list-style-type: none"> 1. Porcelain dish 2. Spatula or Knife 3. Grooving tool 4. Balance 5. Liquid Limit Apparatus (Casagrande Apparatus) 6. Drying oven 7. Containers for moisture content determination
	(b)Determination of Plastic limit of soil.		<ol style="list-style-type: none"> 1. Ground Glass Plate: a ground glass plate at least 30 cm (12 in.) square by 1 cm (3/8 in.) thick for rolling plastic limit threads. 2. Plastic Limit-Rolling Device (optional).

			<ol style="list-style-type: none"> 3. Spatula or pill knife having a blade about 2 cm wide, and about 10 to 13 cm long. 4. Drying Oven 5. Metallic rod 3.2mm diameter and 100mm long 6. Water Content Containers 7. Balance, conforming to Specification D 4753, Class GP1 (readability of 0.01 g).
1.6	Determination of Shrinkage limit of soil.		<ol style="list-style-type: none"> 1. Shrinkage dish having flat bottom, 45mm diameter and 15 mm height 2. Two large evaporating dishes about 120mm diameter with a pour out and flat bottom. 3. One small mercury dish 60mm diameter 4. Two glass plate, one plain and one with prongs, 75mm x 75mm x 3mm size. 5. Glass cup 50mm diameter and 25mm height 6. IS sieve 425micron 7. Oven 8. Desiccator 9. Weighing balance accuracy 0.01 g. 10. Spatula 11. Straight edge 12. Mercury
1.7	Determination of MDD & OMC of soil by using modified Proctor Test.		<ol style="list-style-type: none"> 1. Cylindrical Metal Mold, internal diameter 4" (10.16 cm) or 6" (15.24 cm), internal effective height of

		<p>4.6"(11.7 cm);</p> <p>and the mold should have detachable base plate & color 2" (5.08 cm).</p> <p>2. Rammer; weighing 10 lbs (4.5 kg) & having fall of 18 inches (45.7 cm).</p> <p>3. Sensitive Balance; ranging from 1 gram to 0.1 gram.</p> <p>4. Thermostatically controlled oven (105°C – 110°C).</p> <p>5. Steel straightedge.</p> <p>6. Moisture containers.</p> <p>7. Sieve No.4.</p> <p>8. Tray & scoop.</p> <p>9. Graduated cylinder.</p> <p>10. Mixing Tools (spoon, trowel, Spatula).</p>
1.8	Determination of CBR value using Laboratory CBR Testing device.	<ol style="list-style-type: none"> 1. Mould 2. Steel Cutting collar 3. Spacer Disc 4. Surcharge weight 5. Dial gauges 6. IS Sieves 7. Penetration Plunger 8. Loading Machine 9. Miscellaneous Apparatus
1.9	Determination of c and ϕ of soil by triaxial testing device.	<ol style="list-style-type: none"> 1. Triaxial test setup 2. Sample tubes 3. Rubber ring 4. Open ended cylindrical section 5. Weighing balance