1. Table 1 shows the weight retained on each sieve sizes of a given aggregate size aggregate materials.
    a. Determine the percent retained, cumulative weight retained, cumulative percent retained and Cumulative percent passing
    b. Plot the gradation curve using the percentage passing

Sieve Size (mm)	Aggregate weight retained (g)	Aggregate percent retained (%)	Cumulative weight retained (g)	Cumulative percent retained (%)	Cumulative percent passing (%)
12.5	**0**				
9.5	**370**				
4.75	**1320**				
2.36	**2600**				
1.18	**1500**				
0.6	**1100**				
0.3	**840**				
0.15	**690**				
0.075	**840**				
0	**280**				
Total	**9540**				

Table 1

2. The mass of a container of saturated aggregate was 113.27 g before it was placed in an oven and 100.06 g after it remained in the oven overnight. The mass of the container alone is 49.31 g; the specific gravity of the aggregate is 2.80. Determine the void ratio (e), porosity (n), and gravimetric water content (w) of the original aggregate sample.

3. The results of repeated load tests on a granular aggregate material are tabulated in Table 2. The distance between the LVDT clamps is 4 in. The average recoverable deformations measured by the two LVDTs after 200 repetitions of each axial stress are also shown in the Table.

   a. Determine the Resilient Modulus of each stresses level

   b. Plot the M_r Vs the stress invariant θ

   c. Determine the non linear coefficient K_1 and exponent K_2 from the plot

Confining Pressure (psi)	Axial Stress (psi)	Recoverable Deformation (x 10E-3 in)
15	25	2.5
15	20	1.3
10	20	3.636
10	15	1.74
5	15	3.884
5	10	2.224
1	11	4.444
1	6	2.704

Table 2