EXPERIMENT NO: 02

TO FIND THE GRADATION OF FINE AGGREGATE BY SIEVE ANALYSIS

DESIGNATION:

- B.S. 812: 1960

APPARATUS:

- Sieve Apparatus or sieve set.
- 500 gram sample of sand.
- Manual balance.
- Brittle brush.
- Empty plate.

PROCEDURE:

- Take the triple beam balance and set the reading of the scale to zero.
- Take a pan and measure its weight.
- Put some sand in the pan and with the help of triple beam balance measure 500 gram of the sand.
- Put the sand in sieve #4, and start the sieve shaker for 15 minutes.
- After 15 minutes stop the shaker and separate the sieve #4 from the apparatus. Then with the help of triple beam balance measure the weight of retained particles, note this weight in the table.
- Then similarly measure the weight of the particles retained in each sieve and note them in the table.
- Then in the next step calculate the percentage of the weight retained on each sieve.

PROCEDURE:

- In the next step find the percentage of the weight which has passed through the each sieve. For sieve #4 the total amount which entered will be 500 gram. But for the sieve #8 it will not be the same because some weight has retained by the upper sieve, so the percentage of the passed will be calculated relative to the amount which actually entered that sieve. Similarly for sieve #16 the total amount entering the sieve will be less the value for the upper sieve, similarly for other sieves the same method should be adopted for calculating the percentage of the weight passed.
- In the next column the percentage cumulated is calculated. This is the percentage of the weight which would be retained if the sand is put directly on that sieve. For sieve #4 it will be the same as it is, but for sieve #8 it would be the sum of the percentage retained by the sieve #4 plus that retained by itself. Similarly the percentage cumulated for other sieves is calculated, this is denoted by a_1, a_2, a_3, and so on.

FORMULA:

- Then at the end to find the fineness modulus of the sand add the cumulated percentage of each sieve and divide it by 100, that is :

- Fineness modulus= $\frac{a_1 + a_2 + a_3 + a_4 + a_5 + a_6}{100}$

PRECAUTIONS

- The sample should be in air-dry condition. If not, may be dried at room temperature or by heating at a temperature of 100 – 110 C.
- Sieves should be dry and clean before use.
- Each sieve should be shaken for period not less than 2 minutes.
- Do not force the material through sieve by hand pressure.
- Lumps of fine material should be broken by gentle pressure with fingers against side of sieve