

CE344 LAB 2 QUESTIONS

1. What is the unit weight and how can it be calculated? What are the two types of unit weight?
Calculate the unit weight of the aggregate using the data given in the unit weight test.
2. Determine the apparent specific gravity, dry bulk specific gravity, SSD bulk specific gravity, moisture content and the absorption capacity of coarse and fine aggregates.
3. Using the data given for the fine aggregate:
 - Draw the gradation curve,
 - Comment on whether the sample is suitable according to the ASTM standard gradation curves and if the gradation curve of an aggregate sample does not fit with the standard limits, what can be done to overcome such a problem?
 - Determine the fineness modulus of this aggregate sample and determine what this value indicates,
 - If this aggregate sample is combined with fine aggregate having a fineness modulus of 2.9 in the ratio of 70:30 (by weight) (70% sample+30% with fineness modulus of 2.9), what will be the fineness modulus of the combined aggregate?
 - For what purposes the fineness modulus is used?
 - There are two aggregate samples. Sample A is the one that given in the question and Sample B has fineness modulus of 3. Which aggregate sample is finer?
4. Using the data given for the coarse aggregate:
 - Draw the gradation curve,
 - Determine D_{max}.
5. Determine the amount of material finer than No.200 sieve (by weight) using the given data and determine whether it is suitable according to the standard (ASTM C117).
6. Explain the alkali-aggregate reaction briefly, what are the effects of this reaction on concrete and how may this reaction can be prevented? Draw the elongation in percent graph using the given data and determine the alkali-silica expansion in percent and also determine whether the specimen can be used according to ASTM C 227.
7. What is soundness? According to ASTM C 88, determine whether the aggregate defined in soundness test is resistant to environmental effects such as freezing and thawing.

8. According to ASTM C 131, determine whether the aggregate defined in abrasion test can be used the structures which are subjected to the abrasive forces.