FAQ's

1. What are sources of sand or fine aggregates in concrete

- Sources of sand can be
  - Natural
  - Artificial
- The most common sources of natural sand can be classified into
  - River sources
  - Non river sources
- River sources of sand are that run in channel and off channel. In channel sources are that run in stream and off channel sources include floodplain sand , terrace sand and paleo sand
- Non river sources are mostly just land and off shore sources and are contributed from dunes, pits and beaches. Lakes, lagoon and backwater sands are also an important source. Reservoir sand is also an important source

2. What are some tests for quality of sand

- Organic impurities test – this test is conducted at the field, for every 20 cum or part thereof.
- Silt content test – this is also a field test and to be conducted for every 20 cum.
- Particle size distribution – this test can be conducted at site or in laboratory for every 40 cu.m of sand.
- Bulking of sand – this test is conducted at site for every 20 cu.m of sand. Based on bulking of sand, suitable water cement ratio is calculated for concrete at site.

3. What are sources of course aggregates

- Nearly all natural aggregate originate from bed rocks
- There are three kinds of rocks – igneous, sedimentary and metamorphic rocks. Thus the many property of the coarse aggregates are dependent on the characteristics of the parent rock itself
- They can be classified into two main groups

i) Single size aggregates

ii) graded aggregate - the percentage of weight of the material retained on the following sieve and divided by 100. The coarser the aggregates, the higher the fineness modulus.

4. What is the role of water in concrete

Water serves the following purpose:

• To wet the surface of aggregates to develop adhesion because the cement pastes adheres quickly and satisfactory to the wet surface of the aggregates than to a dry surface.

• To prepare a plastic mixture of the various ingredients and to impart workability to concrete to facilitate placing in the desired position and

• Water is also needed for the hydration of the cementing materials to set and harden during the period of curing.

5. Describe a property of coarse aggregate and how it affects concrete making and strength

Size of Gravel –

• Affects mainly the strength and workability. The use of largest maximum size can be used in practical conditions and they help in reducing the cement content, reduction in water requirement and also reduction in dry shrinkage

• The maximum size of aggregate should not be greater than one fourth the size of structural member nor should it be less than 5mm which is minimum cover of reinforcement