

In normal practice engineers rely on cube strength. But the quality of the cube is somewhat higher than that of the structure though it is of same mixture as special attention is given when preparing cubs on compaction and curing. Therefore Non-destructive testing methods can be used to determined the strength directly by checking the structure Ultrasonic pulse velocity method and the Rebound hammer method are two such methods. However an error of 20% - 30% was found by previous researchers in the individual relationships.

The prime objective of the project is to derive an equation for compressive strength, combining those two individual results and to reduce the high percentage of error. Observation were obtained from 120 cubes varying the characteristic strength from 20-50 Mpa at intervals of 5 Mpa, varying the curing conditions such as water curing, air curing. All specimens were prepared according to the mix design specifications with 20 mm coarse aggregate, fine aggregate finer than, 5 mm and Portland cement.

According to the results, the maximum percentage of error in separate results is 24 whereas that of combined results is in the range of 7 to 13. The percentage of error for 28 days water cured specimens is 9 whereas that for air cured specimens is 7. The maximum percentage error of 13 was obtained in 3 days air cured specimens. The relationships obtained are valid only when the characteristic strength is less than 45 Mpa.