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(57) Abstract :
Different types of experiments done on concrete, to improve the properties of concrete. To modify the properties of the concrete different types of cementitious material are used with admixtures. Main advantage of using cementitious material is to lower down the consumption of cement and it modifies the mechanical properties of concrete. Among all cementitious material Silica Fume gives best performance in strength and durability aspect of concrete. Use of fiber along with cementitious material in concrete is not new but there is considerably change in types of fibers which are used in concrete. A High-performance concrete is something which demands much higher performance from concrete as compared to performance expected from routing concrete. Mineral admixtures also called as cement replacement material (CRM) such as fly ash, rice husk ash, Metakaolin, silica fume and additives such as metallic and non-metallic fibers are more commonly used in the development of High-performance mixes, act as pozzolanic materials as well as fine fillers, thereby the microstructure of hardened cement matrix becomes denser and stronger. In this investigation, the constituent materials replaced by mineral admixtures, chemical admixtures and additives also, it is proposed to use high performance concrete. Also, High Performance concrete specimens with fiber and without fiber in size 150mmx150mmx150mm, cylinder of 150mmx300mm and prism of 100mmx100mmx500mm were cast and the strength tests were observed. Finally mechanical properties of concrete were carried out by ANN modeling. The present investigation was carried out to determine the split tensile strength and the resistance to cracking by determining the flexural strength of plain concrete and polyester fiber reinforced concrete by using "Recron 3s", a polyester fibre. This is aimed at increasing the tensile strength and flexural strength of concrete which weak in tension and only strong in compression. This is also increasing the ductility of concrete under tensile stresses.

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