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(57) Abstract :
Concrete is a combination of cement, fine aggregate, coarse aggregate, water and admixtures. According to world coal association survey over 4.1 billion tons of Ordinary Portland cement (OPC) was used across globally in 2020 and also use of OPC emits CO2 to the atmosphere. In order to overcome the problem, a search for alternative is the need of the hour and apart from cement, fine aggregate is also important additive to concrete. Due to the speedy construction rate deficiency of materials occurs reduction in natural aggregates cause problems like dreading of sand in large scale which creates environment imbalance. The solution is utilizing of Fly ash, silica fume, Granulated Blast Furnace Slag (GBFS) which are comes under industrial by products. The disposal of Industrial by- products should done properly, else it will cause land pollution. In present study silica fume, fly ashes are replaced in OPC and fine aggregate with GBFS. The experimental work executes in order to determine mechanical properties such as compression, split tensile and flexural strength of concrete with age 3,7 and 28 days at various combinations of cements with fly ash varies 20%,30%,40% and constant 8% of silica fume and fine aggregate replaces with GBFS of 30%,40% and 50% in M40 grade concrete with water cement ratio 0.42. As per experimental results conclusions were drawn and recommended that OPC is replaced with 8% of silica fume, 20% of fly ash and fine aggregate replaced with 40% of GBFS achieved optimum strength

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