DEPARTMENT OF CIVIL ENGINEERING
ITER, SoA University
Reinforced Concrete Design (CVL4121)
Minor Assignment 1

1 Design a concrete mix proportion for conditions given below.

1.1 STIPULATIONS FOR PROPORTIONING

Grade designation	M60
Type of cement	OPC 53 grade conforming to IS 12269
Maximum nominal size of aggregate	10mm
Workability	80mm
Exposure condition	Extreme
Type of aggregates	Sub-angular
Maximum cement content	450 kg/m^3
Chemical admixture type	Superplasticizer
Method of concrete placing	Pumping
Degree of supervision	Poor

Note - Minimum cement content and maximum water-cement ratio can be determined from Table-5 IS456:2000.

1.2 TEST DATA FOR MATERIALS

Cement used	OPC 53 grade conforming to IS 12269
Specific gravity of cement	3.15
Chemical admixture	Superplasticizer conforming to IS 9103
Specific gravity of coarse aggregates	2.74
Specific gravity of fine aggregates	2.65
Water absorption for coarse aggregates	0.5%
Water absorption for fine aggregates	1.0%
Free surface moisture for coarse aggregates	Nil
Free surface moisture for fine aggregates	Nil
Sieve analysis of all aggregates	Conforming to Zone 4 of Table-4 IS 383

Note - Refer to IS 456:2000 and IS 10262:2009. Make design assumptions accordingly.