CBCS SCHEME

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BCV503

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
Concrete Technology

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Use IS : 456-2000, IS 10262 : 2019 are permitted.
3. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain the chemical composition of ordinary Portland cement.	10	L2	CO1
	b.	Describe : i) Rapid Hardening Cement (RHC) ii) Sulphate Resisting Cement (SRC)	10	L2	CO1
		OR			
Q.2	a.	Describe briefly the classification of Aggregates.	10	L2	CO1
	b.	Explain the effects of fly ash and silica fresh concrete.	10	L2	CO1
		Module – 2			
Q.3	a.	Briefly explain which are the factors affecting workability.	10	L2	CO2
	b.	Briefly, explain any 2 lab test to measure the workability of fresh concrete.	10	L2	CO2
		OR			
Q.4	a.	Briefly explain the necessity of compaction of concrete. Also explain different methods such as Hand Compaction and compaction by needle vibrator.	10	L2	CO2
	b.	Explain the need for curing of concrete. Also what is water curing and membrane curing?	10	L2	CO2
		Module – 3			
Q.5	a.	Explain creep of concrete and factors affecting creep of concrete.	10	L2	CO3
	b.	Explain Shrinkage of concrete. Also explain plastic shrinkage and drying shrinkage of concrete.	10	L2	CO3
		OR			
Q.6	a.	Describe Sulphate attack and Chloride attack on Hardened concrete.	10	L2	CO3
	b.	Explain : i) Rebound Hammer test ii) Ultrasonic pulse velocity.	10	L2	CO3
		Module – 4			
Q.7		Explain Significance of concrete mix design and write the steps involved in concrete mix design as per IS code and also discuss the variables in proportioning of concrete.	20	L2	CO4

		OR			
Q.8		Design a concrete mix for grade M_{25} a) Grade designation → M-25 b) Type of cement → OPC 53 grade c) Maximum nominal Aggregate size → 20mm d) Minimum cement content → 310 Kg/m^3 e) Maximum water cement ratio → 0.45 f) Workability → 50-75 mm (Slump) g) Exposure condition → Normal h) Degree of supervision → Good i) Type of aggregate → Crushed angular aggregate j) Maximum cement content → 540 Kg/m^3 k) Chemical admixture type → Super plasticizer l) Specific gravity of cement → 3.15 m) Specific gravity of water → 1.0 n) Specific gravity of C.A → 2.882 o) Water absorption of C.A → 1% p) Free surface moisture : NiL q) Specific gravity of fine aggregate : 2.605 r) Water absorption of fine aggregate : 1.23% s) Free surface moisture of F.A : Nil.	**20**	**L3**	**CO4**
		Module – 5			
Q.9	**a.**	Explain the manufacturing process of Ready mix concrete.	**10**	**L2**	**CO5**
	b.	Explain the concept of Self Compacting Concrete (SCC). And its advantages and disadvantages of SCC.	**10**	**L2**	**CO5**
		OR			
Q.10	**a.**	What is light weight concrete? Explain different materials used in light weight concrete.	**10**	**L2**	**CO5**
	b.	Explain : i) High strength concrete ii) High performance concrete.	**10**	**L2**	**CO5**

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