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BCV503

Fifth Semester B.E./B.Tech. Degree Examination, June/July 2025
Concrete Technology

Time: 3 hrs.

Max. Marks: 100

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



Module – 1			M	L	C
Q.1	a.	List the types of cement and briefly explain the properties of any four types of cement.	8	L1	CO1
	b.	Explain the manufacturing process of cement by dry process along with the flow chart.	8	L2	CO1
	c.	Explain the importance of size, shape and texture of aggregate.	4	L2	CO1
OR					
Q.2	a.	List the Bogue's compounds and explain their roles towards strength gaining of cement.	8	L1	CO1
	b.	Explain the classification of chemical admixture. Explain any two.	8	L2	CO1
	c.	Explain the properties of fly ash.	4	L2	CO1
Module – 2					
Q.3	a.	Define workability. Explain the factors affecting the workability of fresh concrete.	10	L2	CO2
	b.	Mention the tests conducted for determining workability of concrete. Explain any one in detail.	10	L2	CO2
OR					
Q.4	a.	Explain the process of manufacturing of the cement concrete. Discuss any two in detail.	10	L2	CO2
	b.	Why compaction is required to concrete? Explain compaction methods by vibration.	10	L2	CO2
Module – 3					
Q.5	a.	Define durability of concrete. Explain the factors affecting durability of concrete.	10	L3	CO2
	b.	Explain compression strength and split tensile strength tests on concrete.	10	L3	CO2
OR					
Q.6	a.	Define shrinkage and creep of concrete. Explain the factors affecting shrinkage of concrete.	10	L3	CO2
1 of 2					

	b.	Explain the non-destructive test rebound hammer with neat sketch.	10	L3	CO2
Module – 4					
Q.7		Design a concrete mix for grade M30 i) Grade designation : M30 ii) Type of cement : OPC 53 grade iii) Maximum nominal size of aggregate : 20 mm iv) Minimum cement content : 300 kg/m ³ v) Workability : 75 mm slump vi) Chemical admixture type : super plasticizer – normal vii) Fine aggregate : zone II viii) Exposure condition : moderate ix) Method of concrete placing : manual x) Specific gravity of cement : 3.15 xi) Specific gravity of chemical admixture : 1.145 xii) Specific gravity of fine aggregate : 2.65 xiii) Specific gravity of coarse aggregate : 2.74 xiv) Water absorption of fine aggregate : 1.0 percent xv) Free surface moisture : Nil xvi) Water absorption of coarse aggregate : 0.5 percent xvii) Free surface moisture : Nil	20	L4	CO3
OR					
Q.8		Design a concrete mix for grade M30 using fly ash: i) Grade designation : M30 ii) Type of cement : OPC 53 grade iii) Type of mineral admixture : Fly ash conforming to IS 3812 iv) Maximum nominal size of aggregate : 20 mm v) Workability : 120 mm slump vi) Chemical admixture type : super plasticizer – normal vii) Fine aggregate : zone II viii) Exposure condition : moderate ix) Method of concrete placing : pumping x) Specific gravity of I. Cement : 3.15 II. Fly ash : 2.2 III. Chemical admixture : 1.145 IV. Fine aggregate : 2.65 V. Coarse aggregate : 2.74	20	L4	CO3
Module – 5					
Q.9	a.	Define RMC. Explain the properties of RMC.	10	L3	CO4
	b.	Explain the advantages and disadvantages of RMC.	10	L2	CO4
OR					
Q.10	a.	Define LWC. Explain the properties of LWC.	10	L3	CO4
	b.	Explain the properties and applications of FRC.	10	L2	CO4
