U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

October 2024 Supplementary Examinations

Programme: B.E. **Semester: IV**
Branch: Civil Engineering **Duration: 3 hrs.**
Course Code: 23CV4PCCON **Max Marks: 100**
Course: CONCRETE TECHNOLOGY

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

			UNIT – I	CO	PO	Marks
1	a)		Elucidate oxide composition limits of Ordinary Portland Cement and List Bogue's compounds and give their formula with abbreviation	CO 1	PO1	12
	b)		With a flowchart explain the dry process of manufacture of cement	CO 1	PO1	08
			OR			
2	a)		Explain the importance of the interfacial transition zone (ITZ) in concrete with a sketch.	CO 1	PO1	10
	b)		Summarize the application of air entraining agents in concrete.	CO 1	PO1	6
	c)		Differentiate between accelerators and retarders.			4
			UNIT – II			
3	a)		Define workability and discuss the various factors affecting workability.	CO 1	PO1	10
	b)		Discuss the necessity and advantages of Ready Mix Concrete	CO 1	PO1	6
	c)		Differentiate between segregation and bleeding.			
			UNIT - III			
4	a)		Explain various factors affecting mix design of concrete	CO2	PO1	5
	b)		Arrive at the concrete mix design concrete. B-*1 STIPULATIONS FOR PROPORTIONING* a) Grade designation: M40 b) Type of cement: OPC 53 grade conforming to IS 269 c) Type of mineral admixture: GGBS d) Maximum nominal size of aggregate: 20 mm e) Minimum cement content: Severe (for reinforced concrete) f) Workability: 100 mm (slump) g) Method of concrete placing: Pumping h) Degree of supervision: Good j) Type of aggregate: Angular k) Maximum cement content: 450 kg/m^3 m) Chemical admixture type: Super plasticizer	CO2	PO3	15

			B-2 TEST DATA FOR MATERIALS a) Specific gravity of cement 3.12 b) Specific gravity of GGBS: 2.95 c) Specific gravity of 1) Coarse aggregate (at SSD condition): 2.70 2) Fine aggregate (at SSD condition): 2.65 3) Chemical admixture: 1.145			
			UNIT – IV			
	5	a)	Discuss the various factors affecting the Modulus of elasticity. Mention the relation between the compressive strength and modulus of elasticity of concrete.	***CO***2	***PO1***	**10**
		b)	Explain the concept and procedure of test to determine strength of concrete by measurement of surface hardness with their applicability.	***CO***2	***PO1***	**10**
			OR			
	6	a)	List and explain various factors affecting strength of concrete.	***CO***2	***PO1***	**10**
		b)	Explain the Ultra sonic Pulse velocity test on concrete and its usefulness in nondestructive evaluation of concrete.	***CO***2	***PO1***	**10**
			UNIT – V			
	7	a)	Discuss the causes and effects of alkali-aggregate reaction. Recommend preventive measures to avoid the same	***CO***2	***PO1***	**10**
		b)	Illustrate the mechanism of sulphate attack on concrete. Explain the factors influencing sulphate attack.	***CO***2	***PO1***	**10**

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