PRN:		Course Code :	UCE305

Second Year **B. Tech** End Semester Examination Winter 2024

Concrete Technology 000130

Day and Date: Mon E 2 DEC 2024 Max Marks: **100**

Time : 10:30AM To 01:30PM Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	List and explain the tests conducted on cement to determine its fineness, soundness, compressive strength, and setting time.	08	02	CO1
	b)	Explain the tests conducted on coarse aggregates, including specific gravity, grading, Flakiness Index, Elongation Index, Impact Value, Abrasion Value, and Crushing Value.	08	02	CO1
		OR			
	b)	Describe the tests for fine aggregates, such as specific gravity, sieve analysis, fineness modulus, and bulking of sand.	08	03	CO1
Q.2		**Attempt the following**			
	a)	Write a note on segregation and bleeding.	08	04	CO1
	b)	Explain the different tests used to measure the workability of concrete.	08	03	CO2
		OR			
	b)	Define workability of concrete and discuss the factors affecting it	08	03	CO2
Q.3		**Attempt any two from the following**			
	a)	Explain the functions of accelerators, retarders, and workability agents in concrete.	08	02	CO2
	b)	Discuss the role of air-entraining agents in enhancing the durability of concrete in freeze-thaw conditions.	08	04	CO2
	c)	Describe the use of mineral admixtures such as fly ash, silica fume, Ground Glass Blast Furnace Slag, and Metakaolin in concrete.	08	03	CO2
Q.4		**Attempt any two from the following**			
	a)	Describe the tests conducted on hardened concrete, including flexural strength, comparison of cube test and cylinder test.	08	03	CO3
	b)	List the tests used to assess the strength of hardened concrete.	08	03	CO3
	c)	List the key characteristics of high-performance concrete and explain its applications in modern construction.	08	02	CO3
Q.5		**Attempt any Two of the following**			
	a)	Explain the effect of water-cement ratio on the durability of concrete.	09	03	CO3
	b)	Explain the Durability of concrete.	09	03	CO3
	c)	Write note on sulphate attack and methods of controlling sulphate attack.	09	04	CO4
Q.6		**Attempt any Two of the following**			
	a)	Explain the characteristics and applications of lightweight concrete and no-fines concrete.	09	04	CO4
	b)	Describe the process and benefits of self-compacting concrete and high-strength concrete.	09	03	CO4
	c)	Explain cold weather concreting, hot weather concreting, pavement. quality concrete.	09	04	CO4

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