Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

M.E DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025

First Semester

Construction Engineering and Management

CN4071/ PCNE2401 - Advanced Concrete Technology

(Use of IS 456:2000, IS 10262:2009 is permitted)

Regulations – 2021/2024

Duration : 3 Hrs ***Maximum : 100 Marks***

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	With rise in temperature of atmospheric air, how is the setting time of cement is affected?	L2	1	2
2.	Which is an indicator of occurrence of metal fatigue?	L1	1	2
3.	How many bags of cement required per m^3 of M25 concrete?	L1	2	2
4.	Mention any four methods of mix proportioning.	L1	2	2
5.	Why curing is required?	L1	3	2
6.	Which is the most preferred method of batching? Why?	L2	3	2
7.	When will ready mix concrete be preferred?	L2	4	2
8.	What is meant by aspect ratio of fibre?	L2	4	2
9.	“High strength concrete is used” in bridges. Why?	L1	5	2
10.	Mention any two factors affecting workability of concrete.	L1	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No		*Questions*	*BLT*	*CO*	*Marks*
11.	a	Evaluate the effectiveness of various chemical admixtures in modifying concrete properties for specific construction applications.	L3	1	16
		Or			
	b	Briefly discuss the following tests on aggregates: i. Flakiness Index ii. Elongation Index iii. Abrasion resistance test	L3	1	16
12.	a	Design a concrete mix for a high-rise building foundation using both ACI and IS methods, specifying the mix proportions for each method and justifying your choices based on the project requirements and local conditions.	L3	2	16
		Or			

	b		Design a concrete mix for M30 grade concrete by I.S Method using the following data. Characteristic Compressive Strength: 30 kPa Maximum size of aggregates: 20 mm angular Degree of quality of concrete: Good Type of Exposure: Severe Compaction factor: 0.87 Specific gravity of cement: 3.15 Specific gravity of coarse aggregate: 2.65 Specified gravity of fine aggregate: 2.68 Water absorption of coarse aggregate: 1.2% Water Absorption of fine aggregate: 1.5% Grading of coarse aggregate: confirms to table 2 of IS:383-1970 Grading of Fine aggregate: Confirms to Zone III of 18 383-1970	L3	2	16
13.	a	i	Discuss briefly the compaction of concrete.	L2	3	8
		ii	List out the equipments used for transporting of concrete.	L2	3	8
			Or			
	b	i	Explain the different methods of Curing.	L2	3	8
		ii	Give a short note on placing of concrete.	L2	3	8
14.	a		Discuss how the unique properties of fiber-reinforced concrete influence the design choices for structural elements.	L3	4	16
			or			
	b		Explain in detail on Geo polymer and self-compacting concrete.	L3	4	16
15.	a		Explain in detail of various tests conducting to determine the strength properties of hardened concrete.	L3	5	16
			or			
	b		Briefly explain the properties of fresh and hardened concrete with suitable examples.	L3	5	16