

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

M.E DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025

First Semester

Construction Engineering and Management

CN4071 / PCNE2401 – Advanced Concrete Technology

(IS 456: 2000 and IS 10262 Codes are permitted)

Regulations – 2021 & 2024

Duration : 3 Hrs

Maximum : 100 Marks

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

<i>Q.No</i>	<i>Questions</i>	<i>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	Recall any four special cements.	L1	1	2
2.	Give the chemical composition of cement.	L2	1	2
3.	Recall the principles of concrete mix design.	L3	2	2
4.	Define characteristic compressive strength of concrete.	L1	2	2
5.	Mention the causes of cracking in concrete.	L2	3	2
6.	Enumerate plastic shrinkage.	L3	3	2
7.	Cite the significance of fibers in concrete.	L2	4	2
8.	What is Geo-polymer concrete?	L2	4	2
9.	Relate the microstructure of concrete.	L2	5	2
10.	Infer the advantages of non-destructive testing of concrete.	L2	5	2

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

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a i Explain any two tests on aggregates.	L3	1	10
	ii Write a note on hydration of cement.	L3	1	6
	Or			
	b Explain any two tests on concrete.	L3	1	16
12.	a i Express how the size and quantity of aggregates affect the strength of concrete.	L3	2	6
	ii Elaborate the IS method of concrete mix design as per IS 10262 with an illustration.	L3	2	10
	Or			
	b i Express special concrete. Write a note on the mix design for special concrete.	L3	2	10
	ii Compare the ACI and DOE methods of concrete mix design.	L3	2	6

13.	a	Develop a flowchart and explain the process of manufacturing of concrete.	L3	3	16
		Or			
	b i	Enlist the methods of transportation of concrete. Discuss their merits and demerits.	L3	3	10
	ii	Explain the importance and methods of curing concrete for durability.	L3	3	6
14.	a i	Describe the characteristics and applications of polymer concrete.	L3	4	8
	ii	Discuss the advantages and disadvantages of waste material-based concrete.	L3	4	8
		Or			
	b i	Elucidate the use of fly ash in concrete. Predict the influence of fly ash on the properties of concrete.	L3	4	8
	ii	Elaborate the tests to be carried out to achieve the self-compacting nature of concrete.	L3	4	8
15.	a	Explain the ultrasonic method of testing concrete with suitable sketches and state the properties of fresh concrete.	L3	5	16
		Or			
	b i	Brief any two tests on hardened concrete.	L3	5	10
	ii	Discuss the factors affecting creep in concrete.	L3	5	6