K. K. Wagh Institute of Engineering Education & Research, Nashik

(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:II
Class:PG-I	Program:M.Tech
Branch Code:CIV	Pattern:2024
Name of Course:Advanced Design of Concrete Structures	Course Code:2404513
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains __02___page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome

		Marks	CO
Question No. 1			
1a)	What are the assumptions in yield line theory?	(6)	CO1
Question No. 2			
2a)	Explain what a flat slab is and the different types of flat slab.	(6)	CO2
Question No. 3			
3a)	Explain behavior and design principles of RC deep beams.	(8)	CO3
	OR		
3b)	Explain behavior of beams curved in plan.	(8)	CO3
3c)	Explain shear failure and design procedure of deep beams	(8)	CO3
	OR		
3d)	Explain design methodology of curved beams.	(8)	CO3
Question No. 4			
4a)	Design a rectangular water tank open at the top, resting on ground having a size of 9.6m × 8.0m × 6.4m high. Use M30 and Fe 500 grade material. Use the IS code method. (Design of base slab and reinforcement detailing is not required)	(8)	CO4
	OR		
4b)	Explain the Design step of circular ESR	(8)	CO4
4c)	Design a rectangular water tank open at the top, resting on ground having a size of 6.5m × 4.0m × 3.5m high. Use M25 and Fe 500 grade material. Use the Approximate method. (Design of base slab and reinforcement detailing is not required)	(8)	CO4
	OR		
4d)	Explain the Design principles of rectangular ESR	(8)	CO4
Question No. 5			

5a)	Explain pile group efficiency and factors affecting it.	(8)	CO4
	OR		
5b)	Explain the suitability of various types of combined footings with the help of neat sketches. Also, describe in detail the step-by-step design procedure of a slab type rectangular combined footing	(8)	CO3
5c)	Explain the difference between raft foundation and pile foundation	(8)	CO3
	OR		
5d)	Explain the various methods adopted for the design of pile caps. Also, describe in detail the step-by-step design procedure of a pile cap resting on four piles with a centrally located column. Draw a neat sectional elevation of the pile cap showing the reinforcement detailing as per IS code provisions	(8)	CO4

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