



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

	InSem Examination-IISummer2024		
	Exam Seat No.:		
	Academic Year:2023-2024	Semester: II	
	Name of Programme: F.Y. M.Tech (Structural Engg.)	Pattern:2022	
	Name of Course: Advanced Design of Concrete Structures	Course Code:CIV225109	
	Max. Marks: 30	Duration: 1 Hr.	

	<p>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.</p> <ol style="list-style-type: none">1. This question paper contains 2 pages.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 and level of Blooms Taxonomy of the Question/sub-question.6. IS 456:2000 is allowed in examination.	
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Question No. 1 Attempt following Question

- a) What are the characteristic features of yield lines? (5) CO1, CO2

OR

- b) Explain the “yield line” analysis and sketch the yield line pattern for a rectangular slab with (5) CO1, CO2
(i) All sided simply supported condition;
(ii) Two sided simply supported and two sides fixed condition
- c) Determine the permissible service load of a simply supported circular slab of radius 3m and reinforced with 10 mm dia bar @ 150 mm c/c. The overall depth of slab is 130 mm and effective cover is 25 mm. Use M20 concrete and Fe 415 steel. (10) CO1, CO2

OR

- d) Design of Rectangular slab of size 3.5m×5m in size simply supported at all edges. The slab is expected to carry a service live load of 3 KN/m² and floor finish load of 1 KN/m² Use M20, Fe415. Design of slab is isotropically reinforced with $\mu=1$ (10) CO1, CO2

Question No. 2 Attempt following Question

- a) Write short note on different types of flat slabs. (5) CO1, CO2

OR

- b) Discuss the role of drop panels in enhancing the performance of a grid slab. (5) CO1, CO2

- c) A R.C. grid floor is to be designed to cover a floor area of 12m x 18m. The spacing of the ribs in mutually perpendicular directions is 1.5m c/c live load on floor is 3kN/m². Adopt M20 grade concrete and Fe 415 HYSD bars. Assume ends are simply supported. (Analysis by approximate methods) (10) CO1, CO2

OR

- d) Design an interior panel of a flat slab of size 5 m x 5 m without providing drop and column head. Size of columns is 500 x 500 mm and live load on the panel is 4 kN/m². Take floor finishing load as 1kN/m². Use M20 concrete and Fe 415 steel. (Shear check and R/F detailing not required) (10) CO1, CO2

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