

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: B.ARCH.
BRANCH: ARCHITECTURE**

**SEMESTER : III
SESSION : MO/2023**

SUBJECT: AR202 (BUILDING CONSTRUCTION & CODES)

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q.1(a)	Differentiate between Gross Bearing Capacity & Net Bearing Capacity of Soil. What are the objectives to achieve while designing the foundation of a building? Sketch a plan and a section of an RCC column footing of column size 250MMX400mm	[5]	CO1 & CO2	BL Understand, Analyze & Create
Q.1(b)	Sketch and explain the difference between Combined Footing & Raft/Mat Foundation. Also discuss where they are used on a construction Site.	[5]	CO2	Understand, Analyze & Create
Q.2(a)	Sketch & explain the following: Formwork, Shoring, Scaffolding & Underpinning.	[5]	CO2	Understand & Create
Q.2(b)	Sketch the details of a Timber Formwork for an RCC Column. Why do we need Shoring on the construction site? Explain any one method of Underpinning with a sketch.	[5]	CO2	Understand, Analyze & Create
Q.3(a)	Explain the manufacturing properties and application areas of High-Performance Concrete and Autoclaved Aerated Concrete. Briefly explain their advantages and disadvantages over conventional concrete and brick work.	[5]	CO3	Understand
Q.3(b)	Explain the working principle and application areas of Light Transmitting Concrete. Sketch and explain any two types of partition walls.	[5]	CO3	Understand & Analyze
Q.4(a)	Draw a plan & a section of 01 BHK residential unit. In the plan and section(s) specify the minimum areas, dimensions (width & length), heights, internal clear height, slope, riser, and tread etc. required for the Habitable room, Kitchen, Toilet, Mezzanine (if applicable), Dining, Loft, Parapet, Cutout, and Staircase as per NBC.	[5]	CO4	Apply & Create
Q.4(b)	Explain the following: Travel Distance, Fire Rating, Dry Riser & Wet Riser, Refuge Area & Staircase Pressurization.	[5]	CO4	Understand
Q.5(a)	Differentiate between a Master Plan & a Land Use Plan. A five storied building is constructed on a 100m x 50m plot having ground coverage of 60% (option 1). Alternatively, a four storied building is created on the same plot with a 50% ground coverage (option 2). What will be the ratio of FARs between option 1 & option 2)?	[5]	CO4	Understand, analyze and apply
Q.5(b)	Draw a plan of an apartment building having two dwelling units of 02 BHK on each floor. Explain what components will be considered in Built Up Area, Carpet Area, Super Built Up Area & Saleable Area of each 02 BHK residential unit.	[5]	CO4	Understand, Apply & Create

:::22/11/2023:::E