

MANIPAL INSTITUTE OF TECHNOLOGY

VII SEMESTER B.TECH (CIVIL ENGINEERING)

END SEMESTER EXAMINATION, NOV 2022

PRECAST TECHNOLOGY (CIE 4054)

(-11 - 2022)

TIME: 3 HRS.

MAX. MARKS: 50

Note: 1. Answer all questions.

2. Any missing data may be suitably assumed.

3. Use of IS456 – 2000 code is permitted

Q. NO	QUESTION	MARKS	CO
1A	What is the relation between sway profile and degree of fixity in precast concrete frames	7	1
1B	Explain the load Transfer mechanism in braced and unbraced precast frames with figures.	3	2
2A	Determine shear wall reactions for the floor of dimensions 28mx6m, supported on a skeletal frame. Shear walls are placed symmetrically at two ends of the floor lengthwise. If the shears wall on RHS is moved 3m towards the centre leaving a cantilever part of 3m, determine the change in shear wall reactions. Take characteristic wind pressure as 3.2kN/m	7	1
2B	Explain Diaphragm floor action with and without structural topping. What is deep beam analogy?	3	1
3A	Explain with fig the welded plate connection between TWO double tee floors.	3	3
3B	How does the load span characteristics influence the design of precast flexural elements. Explain why strain is dominant in design of concrete precast elements.	7	3
4A	Calculate the moment and shear capacity of a L – shaped beam of depth 550mm, upstand width and depth of 180mm and 230mm respectively. Boot width is 300mm. The beam is reinforced with 3 no of 25mm HYSD bars throughout the length. Clear cover of 30mm is provided to the stirrups. 28-day Ultimate strength of concrete is 58 MPa.	7	
4B	How can M- θ plot be used for connection design?	3	2
5A	Explain the load transfer mechanism and connection details of continuous column	7	5
5B	How does the rigidity of infilled shear wall affect the sway mechanism?	3	5