Reg. No.

MANIPAL INSTITUTE OF TECHNOLOGY



## VI SEMESTER B.TECH (CIVIL ENGINEERING) END SEMESTER EXAMINATIONS, JUNE 2022

## SUBJECT: BUILDING CODE AND REQUIREMENTS [CIE 4052]

**REVISED CREDIT SYSTEM** 

( \_ / 06 / 2022)

Time: 3 Hours

Max. Marks: 50

## Instructions to Candidates:

✤ Answer ALL the questions

✤ Missing data may be suitably assumed

Q.No		Marks	СО
1A.	Explain the salient features of the National Building Code 2005	4	1
1 <b>B</b> .	Discuss the provisions for Mezzanine floor in low income housing in rural area	3	1
1C.	List the land layout pattern requirements for low income housing in urban areas	3	1
2A.	Explain the design requirements for staircase in case of fire safety	3	2
2B.	What are the emergency escape lighting requirements in case of fire?	3	2
2C.	Describe the single stack system with neat sketch	4	5
3A.	Discuss the criteria of load combination for structures in Earthquake prone regions	3	3
3B.	Explain briefly the factors affecting design wind speed.	3	3
3C.	Explain briefly under reamed pile with a neat labelled sketch.	4	3
<b>4A.</b>	Explain importance of seismic strengthening bands in a masonry structure with neat sketch	3	4
4B.	An 9 story RC frame building with Live load of $3.5$ kN/m <sup>2</sup> on floors is to be constructed in seismic Zone IV on hard soil as shown in the Fig 1. Calculate the base shear (V <sub>B</sub> ) of the structure, all the beams and columns having dimensions of 300x450mm and 450x600mm respectively. The roof and floor slab having a thickness of 150mm, the wall is all around 200 mm thick made up of bricks and height of each floor is 3m	4	4
4C.	Discuss the different building plan irregularities in a seismic prone area	3	4
5A.	A drawing office 10 m x 10 m and 3 m high has a white ceiling and light-colored walls. The working plane is 0.85m above the floor. For this office, 6000 lm lamps are to be used and normal spacing to height ratio is 1.85. Calculate the number of lamps to be provided? What will be the spacing of the lamps? Also sketch the plan arrangement of the luminaries.	4	5
5B.	Explain design consideration for ventilation	3	5
5C.	Explain the planning criteria for air conditioning systems	3	5