Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

VI SEMESTER B.TECH. END SEMESTER EXAMINATIONS MAY 2024

SUBJECT: Building Code and Requirements [CIE 4052]

Date of Exam: **8/5/2024** Time of Exam: **2.30 PM – 5.30 PM** Max. Marks: **50**

Instructions to Candidates:

- Answer all the questions
- Any missing data may be suitably assumed

1A.	Explain the salient features of the National Building Code 2016.	**4**	**CO1**	**2**
1B.	Discuss the importance of vertical reinforcement in a masonry structure with neat sketch	**3**	**CO4**	**2**
1C.	Explain different categories of seismic waves	**3**	**CO4**	**2**
2A.	Illustrate two stage pressurization technique in fire and safety	**3**	**CO2**	**4**
2B.	Explain general exit requirements in case of fire and safety	**3**	**CO2**	**2**
2C.	Illustrate the single stack system with neat sketch	**4**	**CO5**	**4**
3A.	Discuss the special consideration for Earthquake resistant masonry buildings	**3**	**CO4**	**4**
3B.	Evaluate the wind load using gust factor approach on a RCC multi-storey building 12m x 24 m x 75 m tall, situated in Mumbai (47m/s), in a developed commercial area. Take the average storey height as 3.5 m. The top floor level of the 24 m side. K_1= 0.95, k_2 =1.24, k_3 =1, Force coefficient 1.4.	**4**	**CO3**	**4**
3C.	Summarize the causes for total settlement in soil foundation	**3**	**CO3**	**5**
4A.	Justify the importance of seismic strengthening bands in a masonry structure with neat sketch	**3**	**CO4**	**5**
4B.	A 10 story RC frame building with Live load of 3 kN/m^2 on floors is to be constructed in seismic Zone V on medium soil as shown in the Fig 1. Evaluate the base shear (V_B) of the structure, all the beams and columns having dimensions of 300mm×450mm and 450mm×600mm respectively. The roof and floor slab having a thickness of 150mm, the wall is all around 120 mm thick made up of bricks and height of each floor is 3m.	**4**	**CO4**	**4**
4C.	Discuss the different building plan irregularities in a seismic prone area	**3**	**CO4**	**2**
5A.	A drawing office 10 m × 14 m and 3 m high has a white ceiling and light-colored walls. The working plane is 0.9m above the floor. For this office, 6000 lm lamps are to be used and normal spacing to height ratio is 1.85. Asses the number of lamps to be provided? What will be the spacing of the lamps? Also sketch the plan arrangement of the luminaries.	**4**	**CO5**	**5**
5B.	Explain design consideration for ventilation	**3**	**CO5**	**2**
5C.	Illustrate the planning criteria for air conditioning systems	**3**	**CO5**	**4**

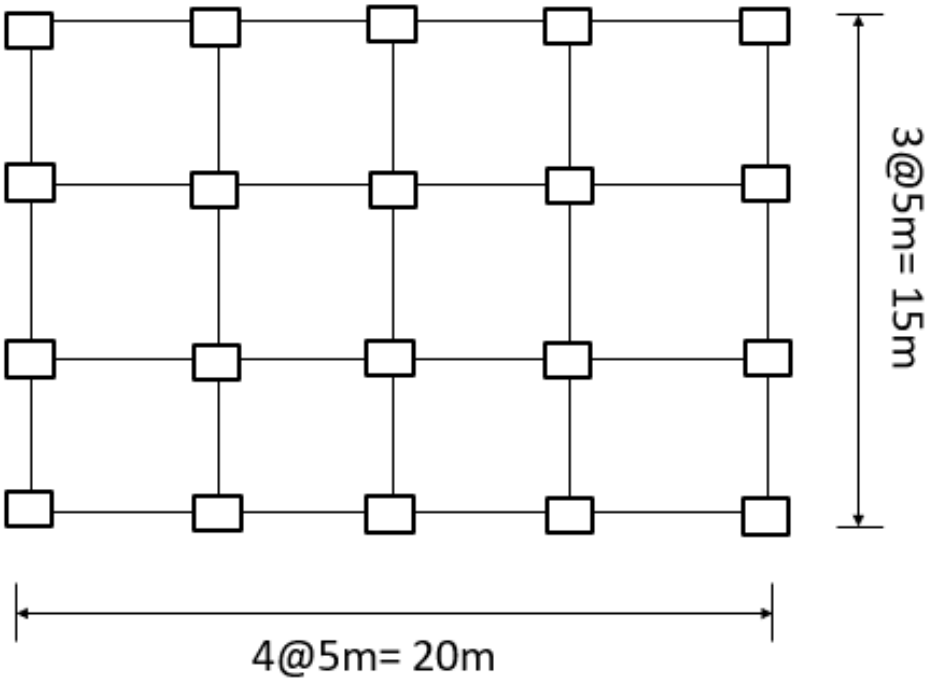

Fig.1