Reg.No. _____

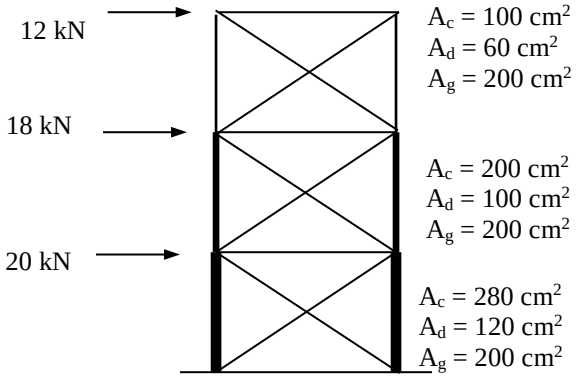
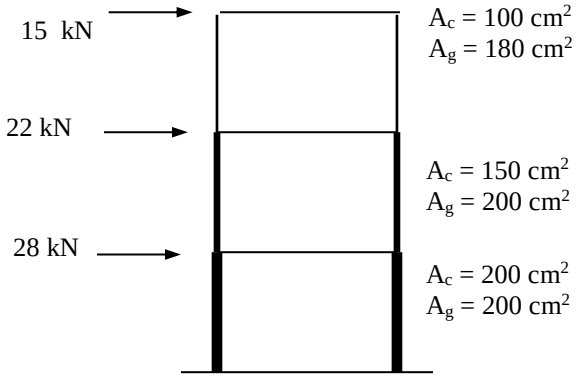
Karunya UNIVERSITY

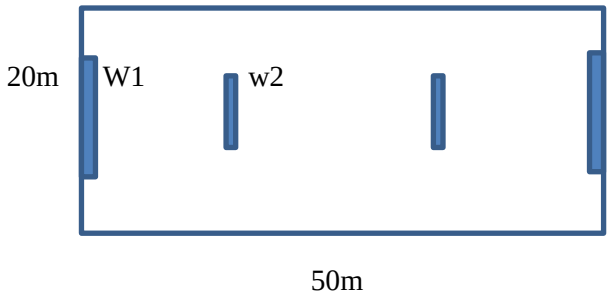
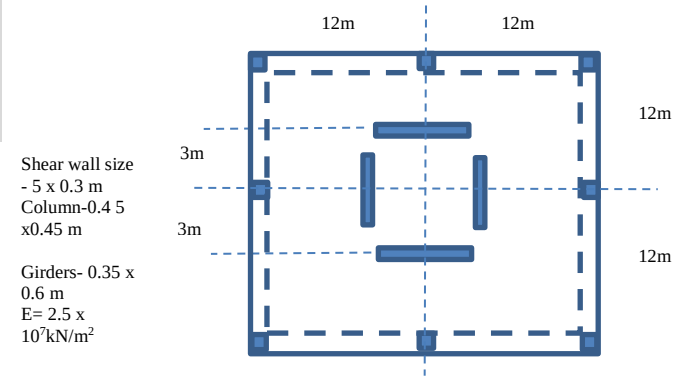
(Karunya Institute of Technology & Sciences)
(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – Nov/Dec – 2016

Code : 14CE3015 **Semester : III**
Sub. Name : Design of Tall Buildings **Duration : 3hrs**
Max. marks : 100

ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	Discuss the necessity for tall buildings	CO1	5
	b.	List the structural forms available for design of tall buildings. Briefly explain the behavior on any three structural form.	CO1	15
		(OR)		
2.	a.	Find the total lateral drift of the braced building shown in Fig.No. The storey drift due to shear for the double braced member can be expressed as $\delta_{is} = \frac{Q}{2E}\left[\frac{d^3}{L^2 A_d}\right]$ The storey height is 4 m each. 	CO2	20
3.	a.	Discuss in detail the approximate modelling of the slabs	CO2	10
	b.	Explain how plane shear walls are modeled for accurate analysis.	CO2	10
		(OR)		
4.	a.	For the rigid frame shown in figure calculate the moments and shear . Assume bay width as 4m and column height as 3.5m 	CO2	20

5.	a.	Describe briefly the failure modes of Infill frames	CO2	**10**
	b.	Mention the components of drift of a rigid frame. Elaborate the procedure for calculation of drift.	CO2	**10**
		(OR)		
6.	a.	Discuss on the methods of analysis for P-Delta effect for tall buildings	CO3	**10**
	b.	Explain why out-of plumb and foundation rotation are termed as second order effects.	CO3	**10**
7.	a.	The layout of shear wall in a building is shown in figure  Wall 1 has inertia of 9 m^4 in the top region and 15 m^4 in the bottom region. Wall 2 has inertia of 3m^4 in the top region and 5 m^4 in the bottom region. The structure is 12 storey high with each floor 3m. The change of Inertia is after 6 stories. Consider uniform wind pressure of 1.5kN/m^2 (30kN/m) and calculate the bending moments and shear force in the walls	CO2	**20**
		(OR)		
8.	a.	Discuss on the mode of behavior of bundled tube structures	CO1	**10**
	b.	When do we prefer to go for coupled shear wall? Explain the forces acting on the coupled shear wall.	CO1	**10**
		Compulsory:		
9.	a.	 Figure shows symmetric plan 20m building with floor height of 3 m, RCC structure consisting of shear walls and frames. Determine the magnitude of gravity load that causes lateral and torsional buckling	CO3	**20**

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