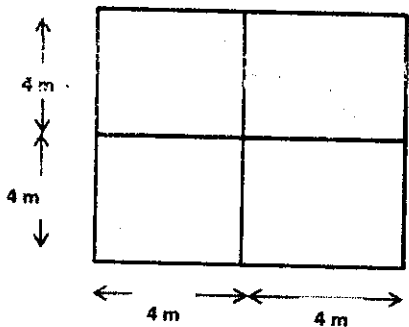
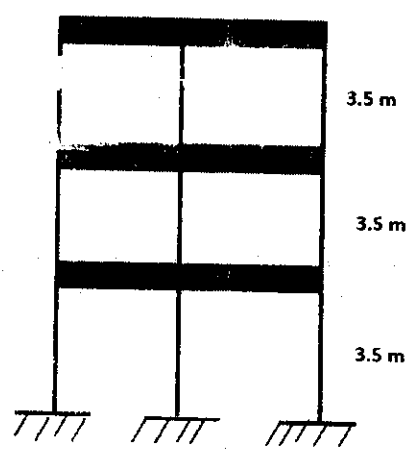


BACHELOR OF ARCHITECTURE EXAMINATION, 2017(3rdYear, 1stSemester)**DESIGN OF STRUCTURE-I**

Time: Three Hours

Full Marks 100

[Only is-875 (part 3) is allowed in the examination hall. Assume reasonable values of any data not given but required.]

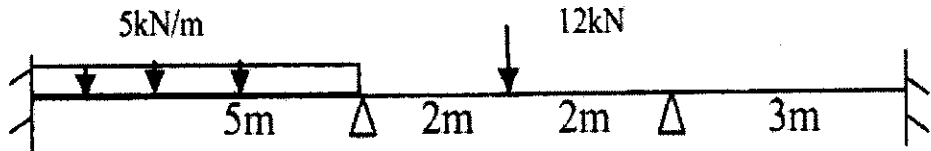
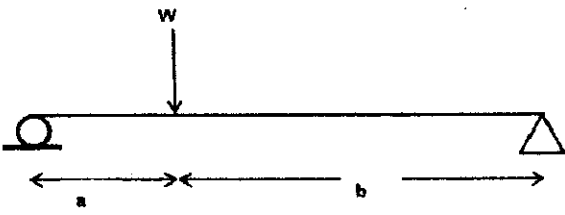
No. of questions	Answer anyfour of the following questions.	Marks (4X25=100)
1(a)	A multistoried building having 20mX35m plan dimension and overall height 30m (ground floor height is 5 m and other floor to floor height is 4m and parapet height is 1m) is to be constructed at Kolkata. Each floor consist 4/7 panel each of 5mX5m size. Determine the design wind pressure acting on the building and draw the pressure diagram. Also determine wind loads on an internal frame at node points. Location: Delhi.	25
2 (a) (b)	<p>Write down a short note on earthquake loading.</p> <p>A school building is located in Delhi (zone IV). The type of soil encountered is medium stiff and it is proposed to design the building with a special moment resisting frame. The intensity of dead load is 10kN/m² and live load is 3 kN/m². Determine the design shear at each floor of the building. The plan and elevation is shown below. $Z=0.24$, $I=1.5$, $R=5$. $S_a/g=[1+15T (T<0.1); 2.5 (0.1 < T < 0.67); 1.36/T (T > 0.67)]$.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div>	5 20

BACHELOR OF ARCHITECTURE EXAMINATION, 2017**(3rd Year, 1st Semester)****DESIGN OF STRUCTURE-I**

Time: Three Hours

Full Marks 100

[Only is-875 (part 3) is allowed in the examination hall. Assume reasonable values of any data not given but required.]

3 (a)	What is weak storey and soft storey of a building?	5
(b)	Write down a note on regular and irregular building from seismic point of view.	20
4 (a)	What is statical indeterminacy and kinematic indeterminacy? Define with example.	5
(b)	<p>Solve the beam by moment distribution method and draw bending moment and shear force diagram.</p>  <p>The diagram shows a beam of total length 10m. It is fixed at the left end (0m) and right end (10m). A roller support is located at 5m. A uniformly distributed load of 5kN/m is applied from 0m to 5m. A point load of 12kN is applied at 7m. The segments are 5m, 2m, 2m, and 3m.</p>	20
5 (a)	State and explain Castigliano theorem.	5
(b)	Derive the strain energy expression due to bending	10
(c)	Find out maximum deflection of the following beam by strain energy method.	10
	 <p>The diagram shows a beam of total length $a+b$. It is supported by a pin at the left end and a roller at the right end. A point load w is applied at a distance a from the left end.</p>	