

BACHELOR OF ARCHITECTURE EXAMINATION, 2019

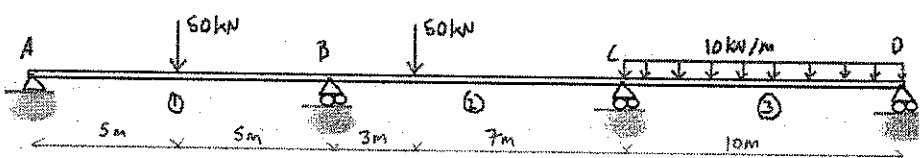
(3rd Year, 1st Semester)

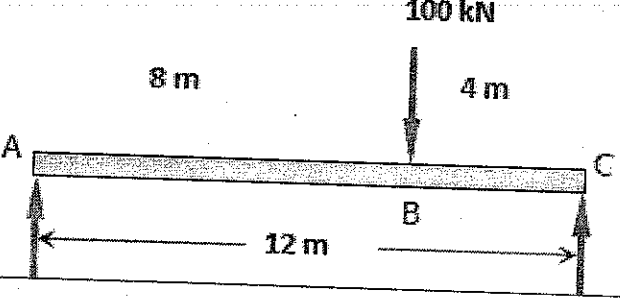
Design of Structure-I

Time: Three Hours

Full Marks 100

[IS 875 (III)] is allowed in the exam hall. Assume reasonable values of any data not given but required for design.]

No of questions	(Answer any four of the following questions.)	Marks (4X25) 100
1(a)	A multistoried building having 10mX30 m 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 Delhi. Each floor consist 2/6 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.	25
2 (a)	A multistoried building having 10mX30 m 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 Delhi (medium soil). Each floor consist 2/6 panel each of 5mX5m size. The intensity of dead load is 10kN/m ² and live load is 3 kN/m ² . Determine the design shear at each floor of the building due to earthquake. The plan and elevation is shown below. $Z=0.24$, $I=1.5$, $R=5$. $S_a/g = 2.5 (T < 0.67)$; $1.36/T (T > 0.67)$.	25
3 (a)	What is static and kinematic indeterminacy? Define with example.	8
(b)	Write down a note on regular and irregular building from seismic point of view.	17
4 (a)	Solve the beam by moment distribution method and draw bending moment and shear force diagram. 	25

5 (a)	State the two theorem of Castigliano.	5
(b)	Derive the strain energy expression due to bending	10
(c)	Determine the maximum deflection of the beam by strain energy method.	10
 <p>The diagram shows a horizontal beam of length 12 m, supported at points A (left) and C (right). A downward point load of 100 kN is applied at point B. The distance from support A to point B is 8 m, and the distance from point B to support C is 4 m.</p>		