Ex/Arch/CE/T/315/2018

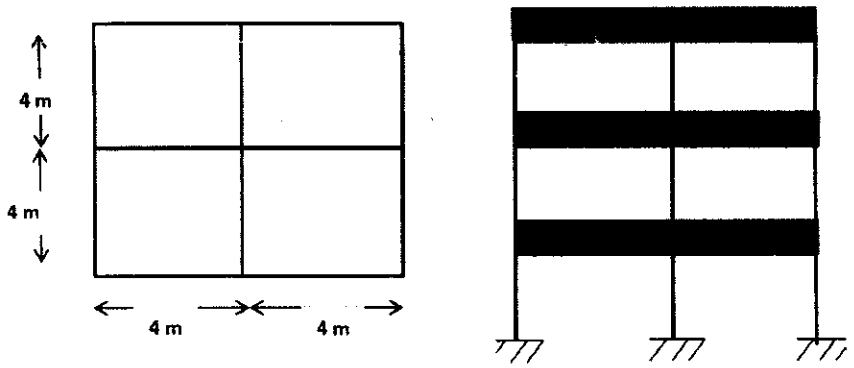
BACHELOR OF ARCHITECTURE EXAMINATION, 2018

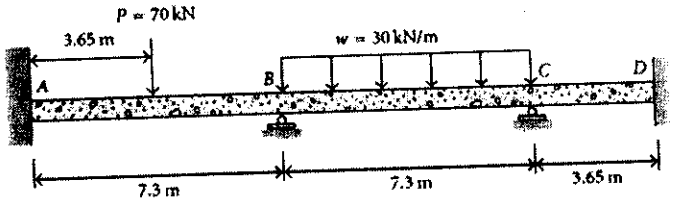
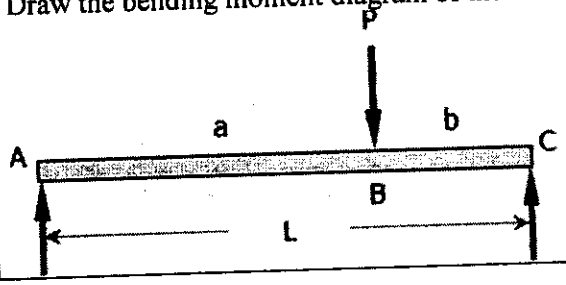
(3rd Year, 1st Semester)

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**
1(a)	A multistoried building having 20mX30 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 Kolkata. Each floor consist 4/5 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: Kolkata.	25
2 (a) (b)	A school building is located in Kolkata (zone III). The type of soil encountered is medium stiff and it is proposed to design the building with a ordinary moment resisting (OMRF) frame. The intensity of dead load is 10kN/m^2 and live load is 5 kN/m^2. Heght of each floor is 3m. Determine the design shear at each floor of the building.The plan and elevation is shown below. Z=0.16, I=1.5, R=5. S_a/g = 2.5 (T<0.67); 1.36/T (T>0.67). 	25
3 (a) (b)	What is weak storey and soft storey of a building? Write down a note on regular and irregular building from seismic point of view.	5 20
4 (a)	What is statical indeterminacy indeterminacy? Define with example.	5

(b)	Solve the beam by moment distribution method and draw bending moment and shear force diagram. 	20
5 (a)	State the two theorem of Castigliano.	5
(b)	Derive the strain energy expression due to bending	10
(c)	Draw the bending moment diagram of the beam by strain energy method. 	10