Bachelor of Architecture - Third Year - First Semester 2018
(Supplementary)
### 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)	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
2 (a)	What is statical indeterminacy and kinematic indeterminacy? Define with example.	5
(b)	Solve the beam by moment distribution method and draw bending moment and shear force diagram.	20
3(a)	A multistoried building having 20mX30m plan dimension and overall height 30m (ground floor height is 5 m and other floor to floor height is 3m and parapet height is 1m) is to be constructed at Kolkata. Each floor consist 4/6 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. Location: Delhi.	25
4 (a)	Write down a short note on earthquake loading.	5
(b)	A school building is located in Delhi (zone III). The type of soil encountered is medium stiff and it is proposed to design the building with a ordinary moment	

resisting frame. The intensity of dead load is 8 kN/m^2 and live load is 4 kN/m^2. Determine the design shear at each floor of the building. The plan and elevation is shown below. Z=0.24, I=1.5, R=3. S_a/g=[1+15T (T<0.1); 2.5 (0.1< T<0.67); 1.36/T (T>0.67).

20

4 m

4 m

4 m   4 m

3.5 m

3.5 m

3.5 m
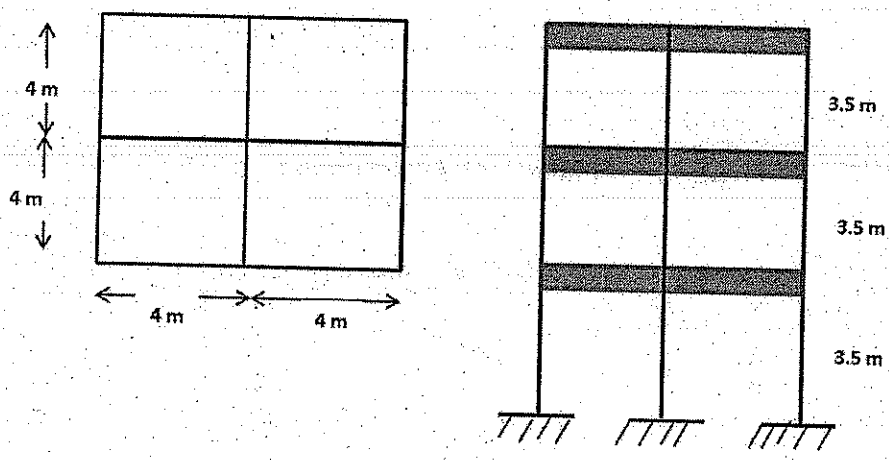
5 (a)	Derive the strain energy expression due to bending.	10
(b)	State the two theorem of Castigliano.	5
	Draw the B.M and S.F. diagram by Castigliano method.	10

W

a   b