Total No. of Questions : 8]

SEAT No. :

P4114

[Total No. of Pages : 2

[4760] - 1035

M. E. (Civil) Structures

EARTHQUAKE ENGINEERING AND DISASTER MANAGEMENT

(2013 Pattern)

Time :3 Hours] *[Max. Marks :50*

Instructions to candidates:

1) ***Answer any five questions.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figure to the right indicate full marks.***
4) ***Use of non programmable electronic calculator is allowed.***
5) ***Assume suitable data, if necessary.***
6) ***Use of IS 1893 2002 (part - I) and IS 13920 - 1993 is permitted***

Q1) a) Define disaster. What are the Natural and Man Made Disasters. **[5]**

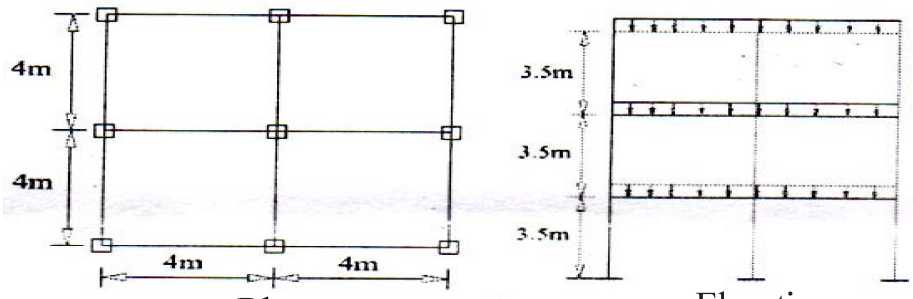
b) Write a note on Seismic waves . **[5]**

Q2) Write a note on **[10]**

a) Post disaster resource management.

b) Direct and Indirect effects of earthquake.

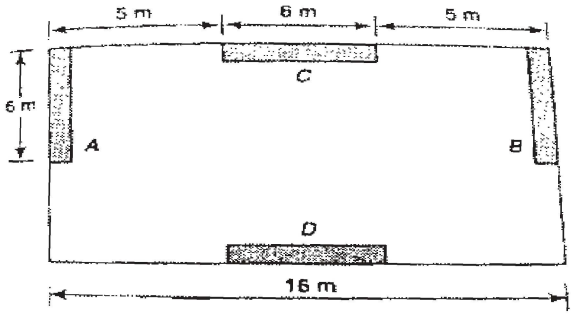
Q3) The plan and elevation of three storied RCC school building is shown in Figure. The building is located in seismic zone V. The type of soil encounter is medium stiff. It is proposed to design the building with special moment resistant frame. The intensity of dead load is 10 kN/m^2 and the floor is to cater to an imposed load of 3kN/m^2. Determine the design seismic load on the structure by static analysis. **[10]**



Plan Elevation

P.T.O.

Q4) A plan of single storey building having two shear wall in each direction is shown in fig. All the four wall are of M-20 grade concrete, 200 mm in thickness and 6m long. Height of the building is 3.6m. Design shear force on the building is l20kN in either direction. Determine the design lateral force for different shear walls.



Q5) a) Write a note on blast loading on non structural elements. **[5]**

b) Define: **[5]**

i) Decay Parameter

ii) Ductility Ratio

iii) Dynamic Pressure

iv) Equivalent Bare Charge

v) Shock Wave Front

Q6) Explain in detail codal provision for design of structure for blast loading. **[10]**

Q7) Write a note on design consideration of structural steel members as per IS-800: 2007. **[10]**

Q8) a) What are the sources of weakness in framed buildings explain in detail.**[5]**

b) What are the failure modes of masonry structures and repairing techniques. **[5]**