COLLEGE OF ENGINEERING, PUNE

(An Autonomous Institute of Government of Maharashtra)
SHIVAJI NAGAR, PUNE - 411 005

END Semester Examination

(CE-404) / Introduction to Earthquake Engineering

CE-14003 --

Course: B.Tech Branch: Civil Engineering

Semester: Sem VII

Year: 2014-2015 Max.Marks:60

Duration: 3 Hours Time:- 2.00 to 5.00 pm **Date:28/11/2014**

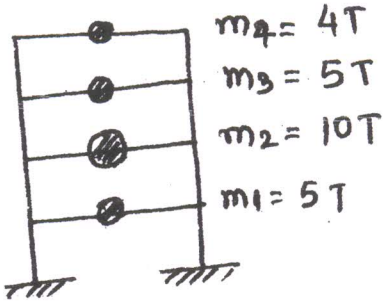
Instructions: **MIS No.** | | | | | | | | | | |

1. Figures to the right indicate the full marks.
2. Mobile phones and programmable calculators are strictly prohibited.
3. Writing anything on question paper is not allowed.
4. Exchange/Sharing of anything like stationery, calculator is not allowed.
5. Assume suitable data if necessary.
6. Write your MIS Number on Question Paper
7. All questions are compulsory

Q.1 [a] What are consequences of earthquake other than damage of building and structure ?
[b] Describe the terms, intensity of earthquake and magnitude of earthquake .
[c] What is significance of geology in seismology ?
[d] What is significance of peak ground acceleration ?

[12]

Q.2 [a] What is the difference between weak storey and soft storey? Explain with reasons and provisions made in IS code .
[b] A building has following details with reference to mass variance . Comment on seismic response of building and the relevant codal provisions .



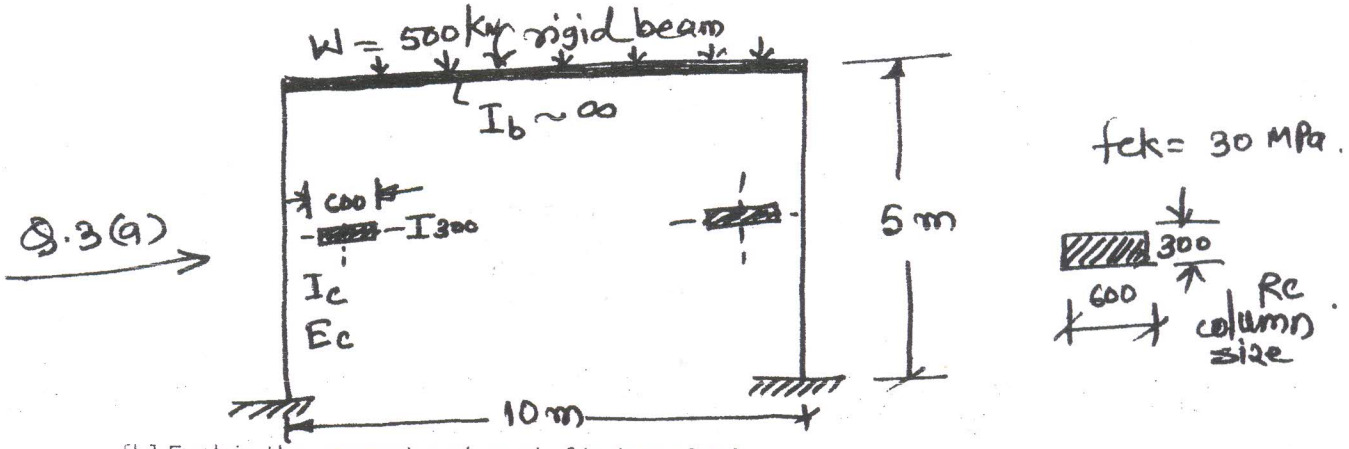
Q.2(b)

[c] Describe with suitable sketches, different types of body waves generated by earthquake and their effects on structure.

[12]

1/2

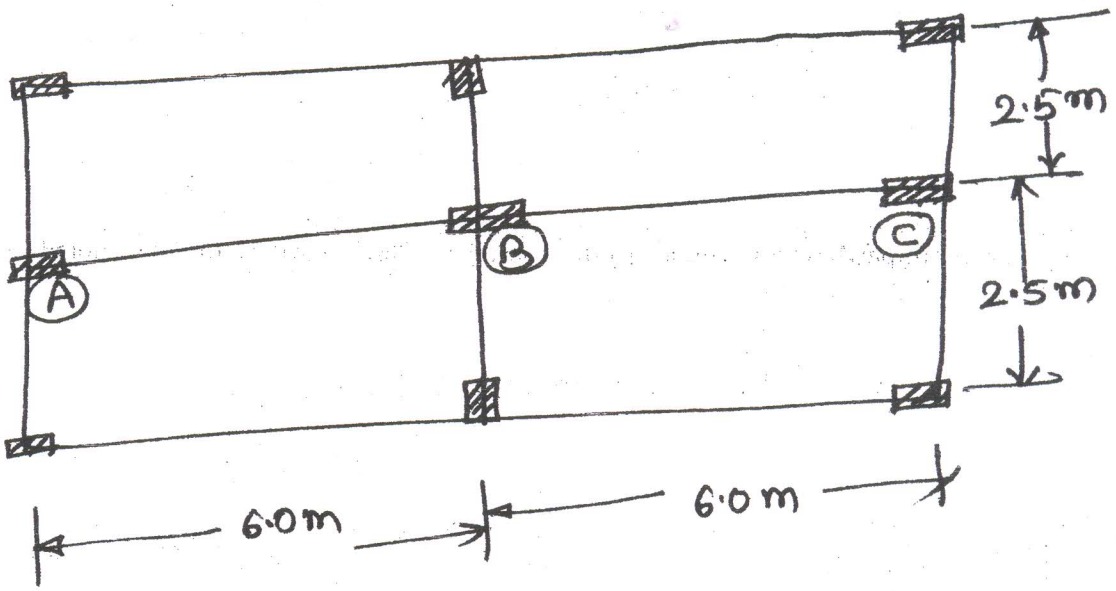
Q.3 [a] Calculate the properties of structure (w, T and f) [10]



[b] Explain the concept and need of isolation? When the base isolation is effective? Give real life example of base isolation with description [06]

Q. 4 Two storey Building has following data . Estimate the BM and SF in roof beam of middle fram (ABC) due to seismic forces .
All slabs = 120 mm , Beams = 250 mm x 500 mm , column 250 x 500 Brick wall = 200 mm thk (density 12 kN/cu.m) . FF height = 3.0 m , plinth above GL = 0.5 m , depth of foundation = 1.5 m , parapet wall = 1.00 m ,water proofing = 1.5 kN/sq.m , live load = 4.00 kN/sq.m on floor and 1.5 kN/sq.m on roof slab . The building is resting on hard strata and located in Mumbai .

Also Design a roof beam (ABC) for gravity and seismic load worst combinations . Use M-20 and Fe500 . Assume suitable data and state is clearly. [20]



RC Building G+1

Q.4