

Enrollment No: \_\_\_\_\_ Exam Seat No: \_\_\_\_\_

# C.U.SHAH UNIVERSITY

## Summer Examination-2017

Subject Name : Geology and Earthquake Engineering

Subject Code : 4TE06GEE1

Branch : B.Tech (Civil)

Semester : 6

Date :17/04/2017

Time :02:30 To 05:30

Marks :70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

- 
- Q-1**      **Attempt the following questions:**      **(14)**
- a) Draw the neat sketch of Fault terminology and give the following Definitions.      5  
(1) Dip (2) Strike (3) Foot Wall (4) Throw and Heave
- b) Draw the sketch of basic terminology of earthquake and Give the Following      5  
definitions.  
(1) Homoseismal line (2) Meisoseismal Line (3) Epicentral Distance (4)  
Epicentre
- c) Which instrument is used for measure the earthquake?      1
- d) Which IS code is used for earthquake resistant Masonry building?      1
- e) What are the functions of cross ties?      1
- f) Draw the general layout of gunitting .      1

**Attempt any four questions from Q-2 to Q-8**

- Q-2**      **Attempt all questions**      **(14)**
- a) Derive the Expression for damped Forced System.      07
- b) Give the Difference between intensity & Magnitude.      04
- c) Explain DVA Curve in brief.      03
- Q-3**      **Attempt all questions**      **(14)**
- a) Explain 'column jacketing' in details with neat sketch.      07
- b) Explain the four virtues of earthquake resistant Structure.      04
- c) Write the Classification of earthquake.      03
- Q-4**      **Attempt all questions**      **(14)**
- a) What is mathematical modeling? Enlist the dynamic parameters of model.      7  
Prepare mathematical model of the system shown in the fig.1 and find natural  
frequency of the system.



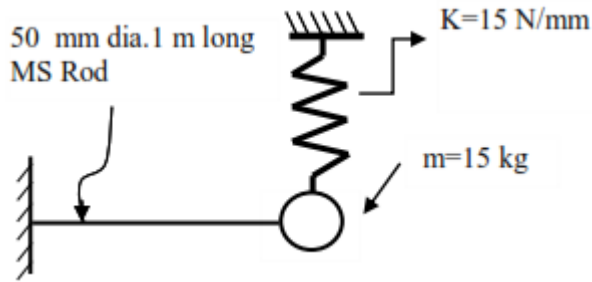


Fig.1 Q-4(a)

- Q-5
- b) What is liquefaction of soil? What are the preventive measure for liquefaction? 07
- Attempt all questions** (14)
- a) Explain the Chemical Weathering in Details 7
  - b) Enlist the physical properties of mineral and explain any two properties in details. 7
- Q-6
- Attempt all questions** (14)
- a) Explain the classification of fault. 7
  - b) What are the textures of igneous rocks? 7
- Q-7
- (14)**

Analyse the building fram shown in fig.2 by approximate method and draw shear force, bending moment and axial force diagrams.

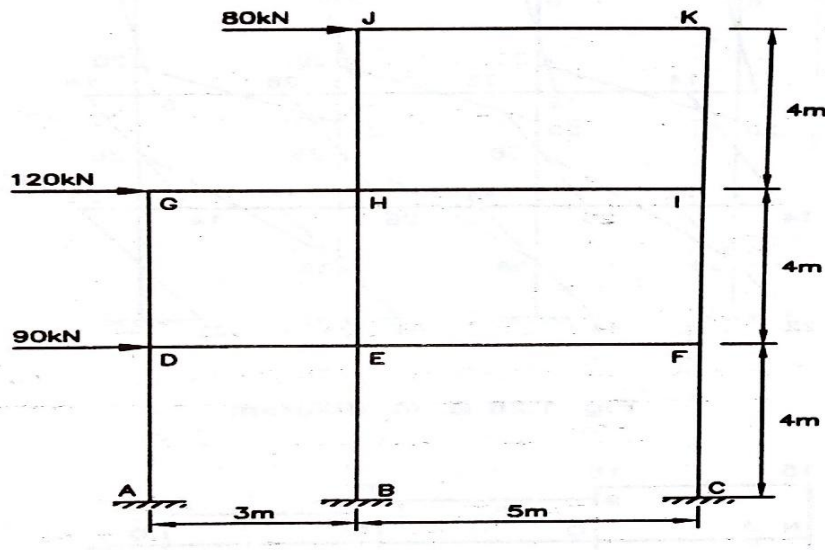


Figure-2 Q-7

- Q-8 (14)

Calculate Natural frequency and corresponding mode shape for the system shown in figure-3. Normalize modes so that  $M_n = 1$ . Also verify the orthogonal condition.



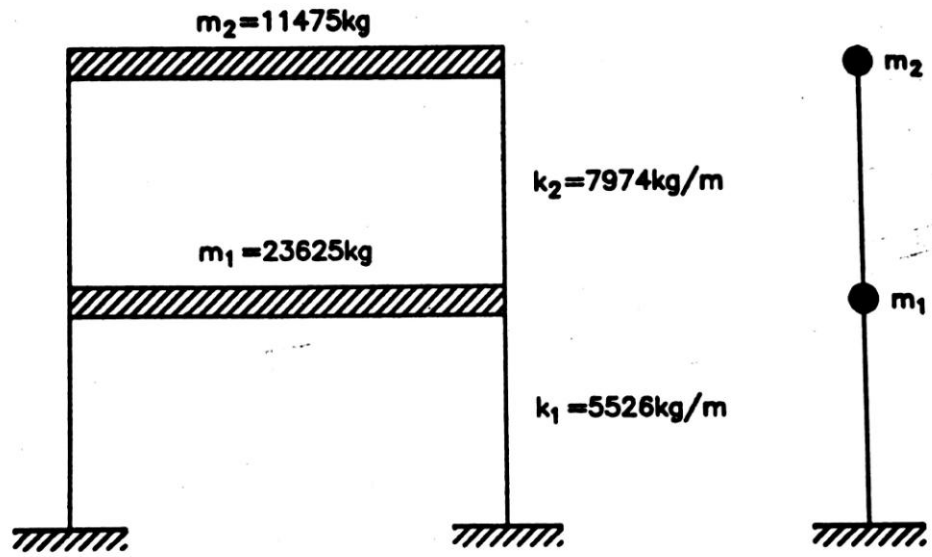


Figure-3 Q-8

