Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 08

M.Tech. Civil Engg. EL-I (2016 Batch) (Sem.–2)

SOIL DYNAMICS

Subject Code : MTCE-214

M.Code : 74307

Time : 3 Hrs. Max. Marks : 100

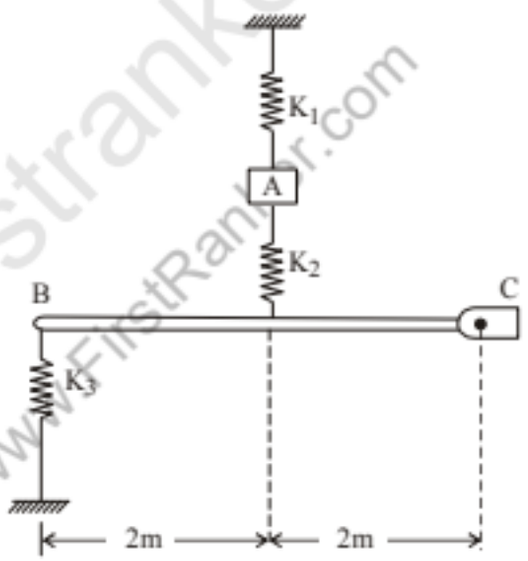
INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

1. What are the equation of motion about the static equilibrium configuration and the natural frequency of motion of body A for small motion of BC?

   Neglect inertial effects from BC.

   Assume K_1 = 12N/m, K_2 = 18N/m, K_3 = 25 N/m, WA= 28N.



2. a) Write short note on the " block vibration test for determining stiffness & damping co-efficient of soil mass".

   b) Derive equation of motion for flexural vibration of a uniform beam. Determine the first two natural frequencies & corresponding mode shapes for the cantilever beam.

3. a) What are the theories for foundation on elastic half space? Explain.

   b) Explain the term base isolation & structural damping.

4. Write short notes on :

   a) Liquefaction analysis

   b) Wave progress in bar & elastic media

   c) Seismic bearing capacity of foundations

5. a) Derive a equation for vibrations with damping.

   b) Write a short note on constant force-amplitude excitation.

6. How can we say that "Lumped parameter system" is essential for design of foundation? Discuss with design criteria.

7. a) What are the methods available for both the active and passive types of isolation?

   b) Write a short note on Cyclic Shear Test.

8. a) What are the types of seismic waves? Explain with neat sketches.

   b) Explain refraction steady state vibration & cross hole shear test.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.