



## DEPARTMENT OF CIVIL ENGINEERING

### MINOR II :CVL 861ANALYSIS AND DESIGN OF MACHINE FOUNDATIONS (2020-21)

**Time allowed:** 1hour

**Venue** : Online

**Date** : 07 May 2021

**Max marks** : 15

**NOTE:** (a) This question paper contains three questions and one printed page only. (b) All questions are compulsory. (c) **Assume any data which you deem is necessary but not supplied.** (d) Draw neat and clear sketches wherever required.

#### Question 1.

Determine the axial stiffness of a group of nine RC friction piles of 500 mm diameter and 10 m length embedded in sand at a spacing of 1500 mm (c/c) from each other.

(06 marks)

#### Question 2.

There is a reciprocating machine operating in vertical direction at a frequency of 50 Hz and weighing 7000 kg. The base of the machine is 1500x1500 mm in plan. It is to be installed inside a shop floor located on ground level. The shop has a thick rigid RC floor. Determine the thickness of four rubber pads of plan dimensions size 300x300 mm of shore hardness 50° to be placed below the machine so as to limit the transmissibility to 10% or less. Damping may be ignored.

(09 marks)