

Mid-Term Exam #1

QUISTION#1

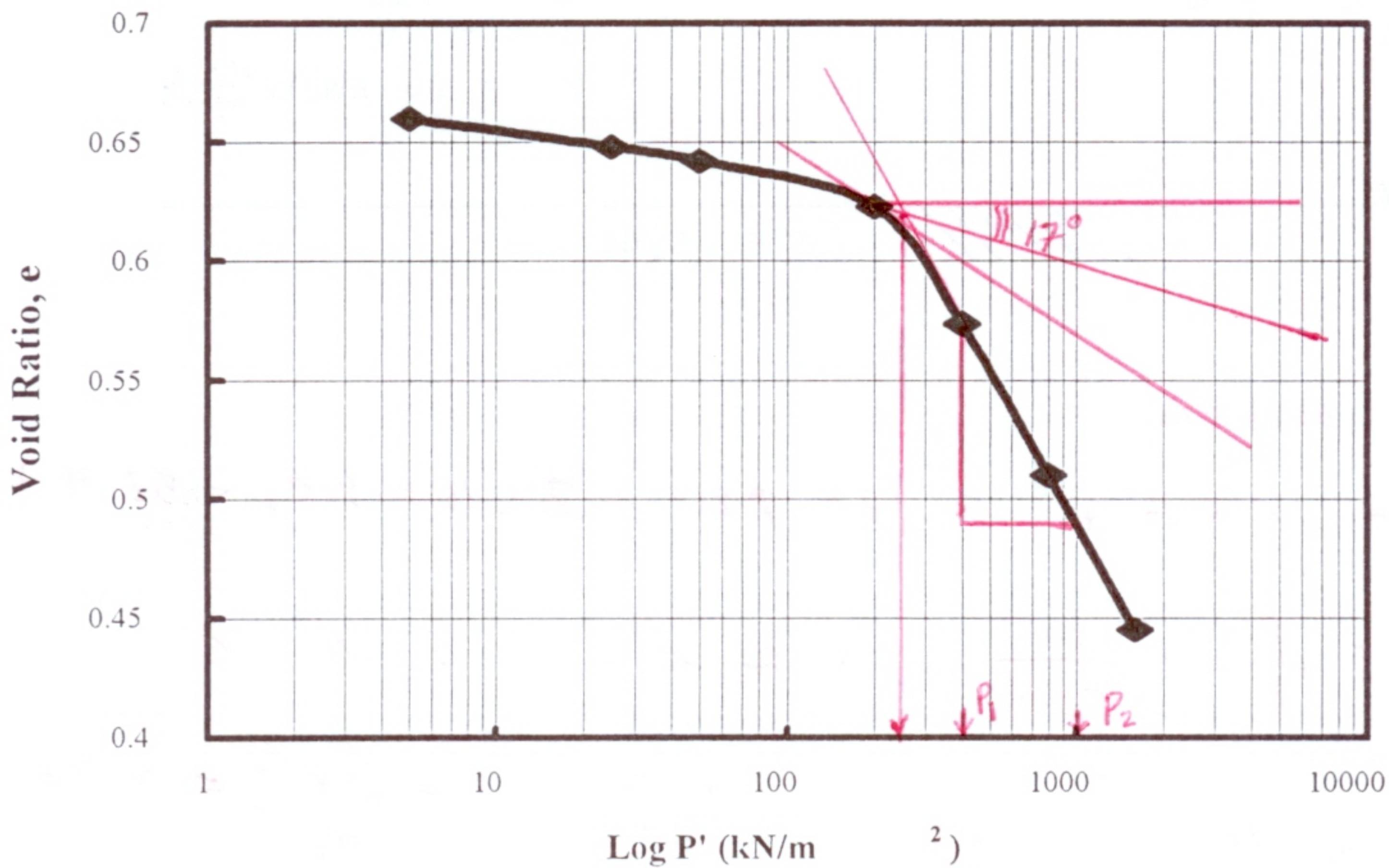
Define the following:

1. Preconsolidation pressure, P_c . *is the maximum past effective overburden Pressure*
2. Compression index, C_c . *→ is the slope of $e-\log p$ plot of N.C.C = $\frac{\Delta e}{\log \frac{P_2 + \Delta P}{P_1}}$*
3. Coefficient of consolidation, C_v . *→ = $k / (\gamma_w m_v)$*
4. Rate of consolidation. $U_z = \frac{S_t}{S}$ *is the ratio of the value of settlement at a time t to the total calculated consolidation settlement*

QUISTION#2

The void ratio versus pressure plot is shown below. The initial void ratio is 0.725, and the existing vertical effective overburden pressure is 25 kN/m². You are required to :

- a. Determine the preconsolidation pressure using the Casagrande's method.
- b. Calculate the compression index, C_c .



$$P_c = 235 \text{ kN/m}^2$$

$$C_c = \frac{\Delta e}{\log P_2 - \log P_1} = \frac{0.575 - 0.489}{\log 1000 - \log 400} = 0.216$$

