Q.4　(C) A 5 m thick saturated soil stratum has a compression index of 0.25 and coefficient of permeability 3.2×10^{-3} mm/sec. If the void ratio is 1.9 at vertical stress of 0.15 N/mm², compute the void ratio when the vertical stress is increased to 0.2 N/mm². Also calculate settlement due to above stress increase and time required for 50% consolidation.　[10]

Q.5　(A) List the assumptions made in deriving Terzaghi's one dimensional consolidation theory.　[05]

　　　(B) Establish the relationship between σ_1, σ_3, c and ϕ.　[05]

　　　(C) Describe the advantages and disadvantages of: Test pits, Hand augers, and Wash boring.　[10]

Q.6　(A) Compare compaction and consolidation.　[05]

　　　(B) The following data relate to a triaxial compression test performed on a soil sample:

Test No.	Cell Pressure	Maximum deviator stress	Pore pressure at maximum deviator stress
1	80 kN/m²	175 kN/m²	45 kN/m²
2	150 kN/m²	240 kN/m²	50 kN/m²
3	210 kN/m²	300 kN/m²	60 kN/m²

Determine the total and effective stress parameters of the soil　[10]

　　　(C) Compare primary valance bond and secondary valance bond.　[05]

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