

Neeraj Singh Panthar

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-1 EXAMINATION- FEBRUARY -2019

B.Tech VI Semester

COURSE CODE: 10B11CE612

MAX. MARKS: 15

COURSE NAME: FOUNDATION ENGINEERING

COURSE CREDITS: 04

MAX. TIME: 1 HR

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Assume suitable data if required.

1. Derive the relation for critical excavation depth for a vertical unsupported cut in a clayey soil with surcharge using pressure distribution diagram. [3]
2. The soil profile at a site for a proposed office building consists of a layer of fine Sand 10.4 m thick above a layer of soft normally consolidated clay 2 m thick. Below the soft clay is a deposit of coarse sand. The groundwater table was observed at 3 m below ground level. The void ratio of the sand is 0.76 and the water content of the clay is 43%. The building proposed will impose a vertical stress increase of 140 kPa at the middle of the clay layer. Estimate the primary consolidation settlement of the clay. Assume the soil above the water table to be saturated, $C_c = 0.3$ and $G_s = 2.7$. [4]
3. Analyze the retaining wall for its overall stability and calculate pressures at the base. [8]

