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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION-SEP-2018

B.Tech.VI Semester

COURSE CODE: 10B11CE612 MAX. MARKS:15

COURSE NAME: Foundation Engineering

COURSE CREDITS: 04 MAX. TIME: One Hour

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

Q1. What is a raft foundation? Where do we provide a raft? List its types. **(3)**

Q2. A square footing 2.5m wide is built in a homogeneous bed of sand of unit weight 20kN/m^3 and having an angle of shearing resistance of 36^0. The depth of the base of footing is 1.5m below the ground surface. Calculate the safe load that can be carried by a footing with a factor of safety of 3 against complete shear failure. Use Terzaghi's analysis. **(4)**

Q3. What will be the maximum safe load for problem 2 above if the soil is loose sand of unit weight of 16kN/m^3 and shearing resistance is 25^0. **(2)**

Q.4 Plate load tests were conducted with a 30cm square plate at a depth of 1.2m below the ground level, in a cohesive soil having Φ=0. The failure was observed at a load of 36kN. The water table was observed to be at a depth of 4.7m below ground surface. Compute the ultimate bearing capacity for a strip footing, 1m wide, with its base located at the same level as that of test plate and in the same soil. Take the bulk unit weight of the soil as 16.8kN/m^3. Also, calculate the safe bearing capacity if FOS is 3. **(6)**