

~~Dr. Raj Kumar~~

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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-1 EXAMINATION- FEBRUARY -2020

B.Tech VI Semester

COURSE CODE: 10B11CE612

MAX. MARKS: 15

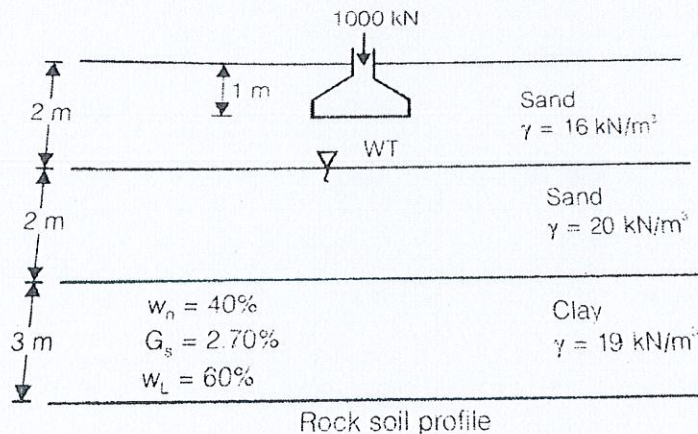
COURSE NAME: FOUNDATION ENGINEERING

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. In the laboratory, a 2 cm thick soil sample takes 25 minutes to reach 30% degree of consolidation. Find the time taken for a 5 m thick clay layer to reach 40% consolidation. Assume double drainage in both cases. [4]
2. The subsoil profile at a proposed site of construction is shown in fig. A square footing 2m x 2m carries a total load of 1000 kN and is laid with base at 1 m below the ground surface. Determine the consolidation settlement of normally consolidated clay layer on account of construction.



3. A clayey backfill with bulk density  $18 \text{ kN/m}^3$  carries a surcharge of intensity  $40 \text{ kN/m}^2$ . Calculate the earth pressure thrust developed over a 5 m high retaining wall and its point of application when the wall is pushed towards the backfill. The backfill is retained upto the top level of the wall. Take  $c=25 \text{ kN/m}^2$  and  $\phi=30^\circ$ . [5]
- [6]