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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- April, 2019

B.Tech. VII Semester

COURSE CODE: 10B13CE736

MAX. MARKS: 25

COURSE NAME: Underground Technology

COURSE CREDITS: 03

MAX. TIME: 1 Hr 30 Min

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

- [1] List the factors that influence the choice of the side – support system to be used for vertical excavation in soil. [6]
- [2] In circular excavation one rarely uses struts, rakers or tiebacks, whereas these are used extensively in rectangular or square shaped excavations. Why? [3]
- [3] Why are cut – and – cover road tunnels constructed in soil of square or rectangular shape whereas bored tunnels are circular in shape? [5]
- [4] Pipe jacking is used often for installation of horizontal sewage lines beneath buildings in urban areas. However, pipe jacking is not used in case of construction of vertical shafts of small diameter. What is your opinion is the reason for not adopting pipe jacking in the vertical direction. [5]
- [5] Explain with reasons which type of shield tunneling equipment should be used in the following soil conditions:
- a) Soil A: CLAY, stiff and moist
  - b) Soil B: SILT, clayey, soft, saturated (below water table)
  - c) Soil C: SAND, medium to coarse, saturated (below water table)
- [2+2+2 = 6]