BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: MTECH/PRE-PHD   SEMESTER : I/NA
BRANCH: CIVIL   SESSION : MO/18

SUBJECT: CE562-STABILITY ANALYSIS OF SLOPE

TIME: 03:00 HRS.   FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)   Explain the main aims of Slope Stability.   [5]
   (b)   Describe different methods of stability analysis.   [5]

Q.2(a)   Discuss application of rock mechanics in Civil engineering.   [5]
   (b)   Discuss the various classifications of Geo-textiles.   [5]

Q.3   Evaluate Factor of Safety of an earthen dam with following geo-engineering parameters: [10]
                              Height = 50m.
         Slope angle with respect to horizontal = 45^0
         Width of the earthen dam = 1m.
         Centre of the most potential circular failure mode = (10m,80m) with respect to origin (0,0) which is
         at the toe of the dam.   The failure mode is passing through origin and also through the earthen dam
         only and not through its foundation.
         Cohesion of rock mass = 40kN/m^2
         Angle of internal friction of rock mass = 30^0.
         Bulk unit weight   = 20 kN/ m^3
         Width of third dimension of dam = 1m.

Q.4   Write total disturbing force in the failure surface considering Seismic co-efficient of 0.70.   [10]

Q.5   Write total frictional force and Factor of safety of failure surface considering Seismic co-efficient   [10]
         of 0.70.

******28.11.18******M