BHARTIYA INSTITUTE OF ENGINEERING & TECHNOLOGY, SIKAR
DEPARTMENT OF CIVIL ENGINEERING
QUESTION BANK
SUBJECT= GEOTECHNICAL ENGINEERING-II

1. Derive an expression for determination of vertical stress under a uniformly loaded circular area.
2. Discuss pressure bulb & its significance in foundation exploration.
3. Derive an expression for vertical stress under a line loading.
4. What is consolidation of soil? And explain any method of coefficient of consolidation.
5. Explain the Terzaghi's one dimensional consolidation theory
6. Differentiate b/w consolidation & compaction of soil.
7. What are different types of slope failures? Derive an expression for the factor of safety of an infinite slope in a cohesion less soil.
8. A vertical cut is made through a homogenous soil mass (C= 20KN/M^2, ϕ=20^0, Y=16.5 KN/M^3). Using culmann's method determine the safe depth of the cut, taking a factor of safety of 2.0
9. State the assumptions made in Rankine's earth pressure theory. Derive the expression for active & passive earth pressure for cohessionless soil from Rankine's theory
10. A retaining wall is 7m high, with its back face smooth & vertical. It retains sand with its surface horizontal. Using Rankine 's theory, determine active earth pressure at the base when the backfill is (a) dry, (b) saturated & (d) submerged, with water table at the surface. Take y = 18 KN/M^3 & Angle of internal friction are 30^0, y $_{sat}$ = 21 KN/M^3.
11. What are the assumptions of Terzaghi's theory of bearing capacity? Discuss its limitations.
12. Derive an expression for effects of water table on bearing capacity of