

Total No. of Questions :6]

SEAT No. :

P59

OCT.-16/B.E./Insem. - 113

[Total No. of Pages :2

B.E. (Civil)

**ADVANCED GEOTECHNICAL ENGINEERING
(401 005) (2012 Pattern) (Semester - I) (Elective - II)**

Time : 1 Hour]

[Max. Marks :30

Instructions to the candidates:

- 1) *Answer Q1 or Q2, Q3 or Q4 and Q5 or Q6.*
- 2) *Neat diagrams must be drawn whenever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data if necessary and mention it clearly.*
- 5) *Non programmable calculator is allowed.*

- Q1)** a) Enlist various types of soil classification system and explain any one type in detail. [5]
- b) Enlist different types of clay minerals and explain role of montmorillonite. [5]

OR

- Q2)** a) Explain in detail engineering properties of soil. [5]
- b) Explain different types of soil structures. [5]

- Q3)** a) Compute the active earth pressure at a depth of 5 m in sand whose angle of friction is 37° and density of 15.60 kN/m^3 in dry state. [5]
- b) Explain Culmann's method. [5]

OR

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- Q4)** a) Explain Rankine's Theory of Earth Pressure on retaining wall due to submerged back fill. [5]
- b) A retaining wall 9 m high retains cohesion less soil, with an angle of internal friction 33° . The surface is level with the top of the wall. The unit weight of the top 3m of the fill is 21 KN/m^3 and that of the rest is 27 KN/m^3 . Find the magnitude and point of application of the resultant active thrust. [5]

- Q5)** a) Enlist different types of geosynthetics and explain any one in brief. [5]
- b) Explain the advantages of Reinforced Earth Structure. [5]

OR

- Q6)** a) Write in brief application of geo-textile in erosion control. [5]
- b) Write a note on slope stabilization using soil nailing method. [5]

