

Total No. of Questions : 4]

SEAT No. :

PD8

[Total No. of Pages : 2

[6409]-201

S.E. (Civil) (Insem)

GEOTECHNICAL ENGINEERING
(2019 Pattern) (Semester - IV) (201008)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) *Solve Q1 or Q2; Q3 or Q4.*
- 2) *Figures to the right indicate full marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Assume suitable data, if necessary and mention it clearly.*
- 5) *Use of non-programmable calculator is allowed.*

- Q1)** a) Explain Major Soil Deposits of India & Illustrate the Honeycomb and Flocculent structure of soil with diagrams. [5]
- b) List various laboratory tests for determination of specific gravity of soil and explain any one method in detail. [5]
- c) The dry unit weight of soil having 10% water content is 18 kN/m^3 . Find Bulk unit weight, saturated unit weight and submerged unit weight. [5]

OR

- Q2)** a) Derive the relationship between specific gravity (G), Void ratio (e), water content (w) and bulk unit weight (γ). [5]
- b) The grading curve of soil gives the effective size as 0.16 mm $D_{30} = 0.40$ mm and $D_{60} = 0.75$ mm. Find C_c and C_u and also classify the soil. [5]
- c) Explain in detail Casagrande's method for determination of Liquid Limit of soil. [5]

P.T.O.

- Q3)** a) List various laboratory tests for determination of coefficient of permeability and explain any one method in detail. [5]
- b) In falling head permeability test, soil sample of 75 mm diameter and length 150 mm indicated a fall of head from 600mm to 300mm in 193 seconds. If the stand pipe has diameter equal to 12mm, determine coefficient of permeability (k). [5]
- c) Write short note on permeability of stratified soil deposits. [5]

OR

- Q4)** a) Define Flow net. Explain in detail what are the properties and uses of flow net. [5]
- b) Explain various factors affecting Coefficient of permeability. [5]
- c) For weir on permeable foundation, the exit gradient does not exceed 80% of the grading causing quick condition. Determine maximum exit gradient if porosity is 50%. [5]