M.E. First Semester (Civil Engineering (Geotechnical Engineering)) (Full Time) (C.G.S.- New)

13043 : Advanced Soil Mechanics : 1 SFGE 2

P. Pages : 1

AW – 3914Add

Time : Three Hours

Max. Marks : 80

Notes : 1. All question carry equal marks.
2. Assume suitable data wherever necessary.
3. Illustrate your answer necessary with the help of neat sketches.
4. Solve **five** questions, use of scientific calculator is allowed.
5. Use of pen Blue/Black ink/refill only for writing the answer book.

1. Attempt the following.

a) Discuss modified failure envelop. What are its advantages and disadvantages over the standard failure envelop? **8**

b) Derive an expression for major principle stresses and major principle stresses. **8**

2. Attempt the following.

a) Derive an expression for the vertical stress at a point due to a line load. Give example of line load. **8**

b) How would you determine the stresses at a point due to a strip load? **8**

3. Attempt the following.

a) Discuss the various methods for improving the stability of slopes. **8**

b) What are the assumptions that are generally made in the analysis of the stability of slopes? What are the different types of slope failure? **8**

4. Attempt the following.

a) What are the different types of earth pressure? Explain active earth pressure and passive earth pressure. **8**

b) Discuss the principle of the design of retaining wall. **8**

5. Attempt the following.

a) Draw different types of apparent pressure diagrams used in the design of braced cuts. What are the factors are affect the pressure distribution? **8**

b) Explain the theory of 3-Dimensional consolidation, what is its practical use? **8**

6. Attempt the following.

a) How would you construct the flow net in an. Non-homogeneous soil mass? **8**

b) How would you draw the flow net when the soil is anisotropic? **8**

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