AQ – 2936

First Semeter M. E. (Civil) (Geotech. Engg.) Examination

ADVANCE SOIL MECHANICS

1 SFGE 2

P. Pages : 2

Time : Three Hours] [Max. Marks : 80

Note : (1) All questions carry equal marks.
(2) Assume suitable data wherever necessary.
(3) Illustrate your answer wherever necessary with the help of neat sketches.
(4) Solve any **five** questions.
(5) Use of scienctific calculator is allowed.
(6) Use pen of 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) What is Mohr's circule ? Discuss its important characteristics. 8

2. Attempt the following :—

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

(b) Explain the vertical stress at a point due to line load. Suggest an example of line load. 8

3. Attempt the following :—

(a) 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

(b) Differentate between the general shear failure and local shear failure. How the ultimate bearing capacity in local shear is determined ? 8

4. Attempt the following :—

(a) What are different types of retaining walls ? Discuss the methods for estimation of lateral earth pressure acting on the walls. 8

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

5. Attempt the following :—

(a) Describe the methods for the design of various components of a braced cut, stating clearly the assumptions made. 8

(b) Explain the theory of 3 dimensional consolidation. What is its practical use ? 8

6. Attempt the following :—

(a) How would you draw the flow net when the soil is anisotropic ? 8

(b) How would you construct the flow net in a non – homogeneous soil mass ? 8