Assignment 09

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment. Due on 2018-10-03, 23:59 IST.

State whether the following statements are true or false. Please write either 'true' or 'false' in the response box. Do not put white space or any other extra characters.

1) Unsaturated sandy soils show cohesion intercept on the s-t plot obtained from suction controlled triaxial tests.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) True

2) In Bishop’s effective stress equation, c' and f' are material constant and c is a state variable.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) False

3) The effective stress parameter, c is independent of suction.

No, the answer is incorrect.
Score: 0
Accepted Answers:

5) Water retention tests and suction controlled direct shear tests are conducted on unsaturated silty soil. The relationship between effective stress parameter $\chi$ and degree of saturation can be established using Bishop’s modified M-C criterion.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) False

1 point

6) The extended M-C criterion (Fredlund et al., 1978) for shear strength of unsaturated soil represents a curved surface in $t$, $s-u_a$ and $u_a-u_w$ space.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) True

1 point

7) The Bishop’s effective stress equation can also be written as $s' = (s-u_a) + c(s-u_w)$ based on the null-type tests.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) True

1 point

Choose the correct option.

8) Which of the following relationships is true?

- $\tan \, f^b = c/ \tan \, f^c$
- $\tan \, f^b = c \, \tan \, f^c$
- $\tan \, f^c = c \, \tan \, f^b$
- $\tan \, f' = c \, \tan \, f^b / c$

No, the answer is incorrect.
Score: 0

Accepted Answers:

$\tan \, f^b = c \, \tan \, f^c$

1 point
9) A series of suction controlled direct shear tests are conducted for four identical specimens of unsaturated silty soil. The stress state at failure for each test are as follows:

**Test 1:**  \( u_a - u_w = 0 \text{ kPa} \)  \( \tau_f = 65 \text{ kPa} \)  \( (\sigma - u_a)_f = 110 \text{ kPa} \)

**Test 2:**  \( u_a - u_w = 0 \text{ kPa} \)  \( \tau_f = 160 \text{ kPa} \)  \( (\sigma - u_a)_f = 300 \text{ kPa} \)

**Test 3:**  \( u_a - u_w = 400 \text{ kPa} \)  \( \tau_f = 185 \text{ kPa} \)  \( (\sigma - u_a)_f = 110 \text{ kPa} \)

**Test 4:**  \( u_a - u_w = 400 \text{ kPa} \)  \( \tau_f = 285 \text{ kPa} \)  \( (\sigma - u_a)_f = 300 \text{ kPa} \)

The shear strength parameter, \( c' \) in kPa using extended M-C failure criterion is __________