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B.E. 6th Semester (Civil Engg.)

Examination, May-2012

GEOTECHNOLOGY

Paper-CE-306-E

Time allowed : 3 hours] [Maximum marks : 100

Note : (i) Attempt any five questions.

(ii) All questions carry equal marks.

(iii) Assume any missing data wherever necessary.

(iv) Draw neat diagrams wherever desired.

1. (a) Discuss, with a neat sketch, important components and embankment details of an earth dam.

(b) What is the criteria to be met by transition filters for protection against failure due to piping ?
Explain. 10+10=20
2. (a) Discuss various types of slope failures (slides).
For infinite slopes, prove that the critical height of slopes, for the given strength parameters, depends on slope angle.

- (b) Explain friction circle method for investigation of stability of finite slopes. $12+8=20$
3. (a) Discuss soil pressure in braced cofferdams.
- (b) What is the difference between a bulkhead and cofferdam ? $10+10=20$
4. A anchored Sheet-Pile wall supports a cohesion-less soil having unit weight of 24KN/m^3 and angle of shearing resistance, 28° . The anchor ties are positioned 1m below the top of wall at 1m horizontal spacing. Find the minimum depth of anchor for sheet-pile neglecting the friction on the surface of pile. 20
5. (a) Draw a pressure diagram for an anchored bulkhead adopting free earth support method.
- (b) Explain neatly how braced cuts are used in laying of sewers of a metropolitan city in granular soils. $10+10=20$
6. (a) What is Taylor's Stability Number ?

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- (b) Discuss the effect of consistency of clay in determining the strut loads in deep open cuts.

10+10=20

7. How will you improve the performance of soil as a constructional material ? Explain in detail. 20
8. (a) . What do you understand by theory of vibrations ? Why is it essential ? Explain.
- (b) Define Free vibration, Damping, Degree of Freedom and modes of vibrations. 12+8=20