

J. P. Institute of technology

Biyabani Biharsharif (Nalanda)

Geotechnical Engineering

FM : 20

Sem- 4 Civil Engg. Time: 30 min

Only one option is correct.

Choose the correct option:--

1.) Terzaghi equation is valid for-

- a. Strip footing
- b. Square footing
- c. circular footing
- d. Isolated footing

2.) If q_u

is unconfined compressive strength of soil then-

- a. $q_u = C/2$
- b. $q_u = 2C$
- c. $q_u = C$
- d. None

3.) Which of the following is used for cohesive soil?

- a. Triaxial test
- b. Direct shear test
- c. Unconfined compression test
- d. Vane shear test

4.) Sand is an example of-

- a. ϕ -soil
- b. C-soil
- c. C- ϕ soil
- d. None

5.) $n =$

- a. V_v/V_s
- b. V_s/V_v
- c. $V_v/(V_v+V_s)$
- d. None

6.) If V =discharge velocity & V_s
=seepage velocity then-

- a. $V < V_s$
- b. $V = V_s$
- c. $V > V_s$
- d. $V \leq V_s$

7.) Choose the correct relation-

- a. $Y_d = Y(1+w)$
- b. $Y_d = Y/(1+w)$
- c. $ew = GS$
- d. $e = n/(n-1)$

8.) For a soil, $e = 1$, then porosity =

- a. 100%
- b. 50%
- c. 33.33%
- d. 20.8%

9.) Phreatic line is-

- a. Top most flow line
- b. Bottom most flow line
- c. Parallel to equipotential line
- d. Orthogonal to flow line

10.) As per falling head test, $K =$

- a. $2.303LA/at \cdot \text{Log}(h_1/h_2)$
- b. $2.303La/At \cdot \text{Log}(h_2/h_1)$
- c. $2.303La/At \cdot \text{Log}(h_1/h_2)$
- d. None

11.) Pycnometer is used to determine-

- a. Sp. Gravity
- b. water content
- c. Dry unit weight
- d. Both (a) & (b)

12.) Correct permeability order is-

- a. Gravel > sand > clay > silt
- b. Gravel > sand > silt > clay

- c. Gravel>silt>sand>clay
- d. Gravel>silt>clay>sand

13.) Atterberg limits are-

- a. Degree of saturation
- b. Volume of soil mass
- c. Air content
- d. Water content

14.) Bulk unit weight of soil is determined by-

- a. Core cutter method
- b. Pycnometer
- c. Sand replacement method
- d. Both (a) & (c)

15.) Which one is correct?

- a. $I_p = w_p - w_L$
- b. $K_p = K/n$
- c. $Y_d = GY_w / (1-e)$
- d. All

16.) If dry density of a soil is 1.72 gm/cc. It's dry unit weight will be-

- a. 16.87 KN/m³
- b. 17.84 KN/m³

- c. 18.48 KN/m³
- d. None

17.) Choose the correct statement-

- a. Water content can not be more than 100%.
- b. Degree of saturation can not be more than 100%.
- c. Both (a) & (b)
- d. None

18.) For cohesive soil, slope of failure envelope will be-

- a. More than 45°
- b. Less than 45°
- c. Zero
- d. Can't be determined

19.) Which one has no unit?

- a. Permeability
- b. Void ratio
- c. Unit weight
- d. Bearing capacity

20.) The correct statement for a given soil mass is -

- a. Void ratio and porosity can never be equal.
- b. If water content= 100% then degree of saturation is also 100%.
- c. I_D can be greater than 1.
- d. All of the above.
