

UNIT – IV : Consolidation of Soils

1. Consolidation is the process of
 - a) Densification by expulsion of air
 - b) Volume reduction due to expulsion of water
 - c) Increase in water content
 - d) Increase in void ratio**Answer: b**
2. Consolidation is most significant in
 - a) Gravel
 - b) Sand
 - c) Clay
 - d) Rock**Answer: c**
3. Immediate settlement occurs due to
 - a) Elastic deformation of soil
 - b) Water drainage
 - c) Creep
 - d) Shrinkage**Answer: a**
4. Primary consolidation is caused by
 - a) Expulsion of pore water
 - b) Expulsion of air
 - c) Weathering
 - d) Compaction**Answer: a**
5. Secondary consolidation is mainly due to
 - a) Water drainage
 - b) Creep of soil particles
 - c) Air compression
 - d) Seepage**Answer: b**
6. Terzaghi's consolidation theory is applicable to
 - a) One-dimensional consolidation
 - b) Two-dimensional consolidation
 - c) Three-dimensional consolidation
 - d) Radial consolidation only**Answer: a**
7. The coefficient of consolidation is denoted by
 - a) C_c
 - b) C_v
 - c) C_r
 - d) C_u**Answer: b**
8. Unit of coefficient of consolidation (C_v) is
 - a) m/s
 - b) m^2/s
 - c) N/m^2
 - d) m^3/s**Answer: b**
9. A normally consolidated soil is one that
 - a) Has never been loaded
 - b) Is loaded beyond its past maximum pressure
 - c) Is currently subjected to its maximum past pressure
 - d) Is completely dry**Answer: c**
10. An over-consolidated soil has
 - a) Present pressure greater than past pressure
 - b) Present pressure less than past pressure
 - c) No loading history
 - d) Constant pressure**Answer: b**
11. Pre-consolidation pressure represents
 - a) Future loading pressure
 - b) Maximum past effective stress
 - c) Water pressure
 - d) Total stress**Answer: b**
12. The laboratory test used for consolidation studies is
 - a) Triaxial test
 - b) Direct shear test
 - c) Oedometer test
 - d) Permeability test**Answer: c**

13. The e - $\log(p)$ curve relates

- a) Water content and pressure
- b) Void ratio and effective pressure
- c) Density and pressure
- d) Permeability and pressure

Answer: b

14. Compression index is represented by

- a) C_v
- b) C_c
- c) C_r
- d) C_u

Answer: b

15. Degree of consolidation is expressed in

- a) N/m^2
- b) Percentage
- c) m^2/s
- d) kN/m^3

Answer: b

16. Time rate of settlement depends on

- a) Coefficient of consolidation
- b) Drainage path length
- c) Soil permeability
- d) All of these

Answer: d

17. The square root of time fitting method is used to determine

- a) Compression index
- b) Coefficient of permeability
- c) Coefficient of consolidation
- d) Specific gravity

Answer: c

18. The logarithm of time fitting method is also used to determine

- a) C_v
- b) C_c
- c) C_u
- d) e

Answer: a

19. Double drainage reduces the consolidation time by

- a) 2 times
- b) 4 times
- c) 8 times
- d) 16 times

Answer: b

20. Settlement of saturated clay foundations is primarily due to

- a) Consolidation
- b) Erosion
- c) Capillarity
- d) Weathering

Answer: a