

UNIT – II : Permeability, Effective Stress & Seepage

1. Darcy's law is applicable to

- a) Turbulent flow
- b) Laminar flow
- c) Open channel flow
- d) Critical flow

Answer: b

2. Darcy's law is expressed as

- a) $Q=kiA$
- b) $Q=A/i$
- c) $Q=i/A$
- d) $Q=kA$

Answer: a

3. Unit of coefficient of permeability is

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

Answer: c

4. Permeability is highest in

- a) Clay
- b) Silt
- c) Sand
- d) Gravel

Answer: d

5. Capillary rise is greatest in

- a) Gravel
- b) Coarse sand
- c) Fine sand
- d) Boulder

Answer: c

6. Hydraulic gradient is

- a) h/L
- b) L/h
- c) $h \times L$
- d) h^2/L

Answer: a

7. Effective stress principle was proposed by

- a) Darcy
- b) Casagrande
- c) Terzaghi
- d) Boussinesq

Answer: c

8. Effective stress equation is

- a) $\sigma' = \sigma + u$
- b) $\sigma' = \sigma - u$
- c) $\sigma' = u - \sigma$
- d) $\sigma' = \sigma u$

Answer: b

9. Quicksand condition occurs when

- a) Effective stress is maximum
- b) Effective stress is zero
- c) Water content is zero
- d) Soil is dry

Answer: b

10. Flow net consists of

- a) Stress lines
- b) Stream lines and equipotential lines
- c) Load lines
- d) Settlement lines

Answer: b

11. Flow lines and equipotential lines intersect at

- a) 30°
- b) 45°
- c) 60°
- d) 90°

Answer: d

12. Permeability depends on

- a) Void ratio
- b) Grain size
- c) Soil structure
- d) All of these

Answer: d

13. Falling head test is suitable for

- a) Gravel
- b) Sand
- c) Clay
- d) Rock

Answer: c

14. Constant head test is suitable for

- a) Clay b) Fine silt c) Gravel and sand d) Peat

Answer: c

15. Seepage pressure acts

- a) Opposite to flow direction b) Along flow direction
c) Vertically upward only d) Horizontally only

Answer: b

16. Total stress is due to

- a) Soil skeleton only b) Water only
c) Entire overburden d) Air pressure

Answer: c

17. Neutral stress is another name for

- a) Effective stress b) Pore water pressure
c) Shear stress d) Total stress

Answer: b

18. The shape of flow net fields is approximately

- a) Rectangular b) Circular c) Square d) Triangular

Answer: c

19. Coefficient of permeability is represented by

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

Answer: c

20. Seepage analysis is important in

- a) Earth dams b) Retaining walls
c) Foundations d) All of these

Answer: d