1. The term soil mechanics was coined by
(a) Rankine (b) Newton (c) Terzaghi (d) Newmark

2. The maximum size of grain od silt is about
(a) 0.06 mm (b) 0.2 mm (c) 0.5 mm (d) 1mm

3. Cohesion less soil is:
(a) Silt (b) Sand (c) Clay (d) None of the above

4. The property of a fluid which determine its resistance to shearing stresses is called:
(a) Viscosity (b) Surface tension (c) Adhesion (d) None of the above

5. Which of the following statement is false?
(a) Clay deposits are more porous than sand beds
(b) Presence of organic matter in soil decreases the bearing capacity of the soil
(c) The change of moisture content changes the value of angle of repose
(d) None of the above

6. Clay is an example of-
(a) Aquifer (b) Aquitard (c) Aquiclude (d) Aquifuge

7. Black cotton soil is not suitable for foundation because of its-
(a) Black color (b) Low bearing capacity (c) Cohesive particles (d) Swelling and shrinkage

8. Clay is generally
(a) Cohensive (b) Permeable (c) Having large particle size (d) None of the above

9. If the pores of a soil are completely full of air only, the soil is said to be
(a) Wet soil (b) Dry soil (c) Fully saturated soil (d) Partially saturated soil

10. The relation between porosity (n) and void ratio (e) is given by
(a) n = (1+e) /e (b) n = (1-e) /e (c) n =(e/1+e) (d) n = (e/1-e)

11. Which one of the following methods is most accurate for the determination of the water content of soil?
(a) Oven drying method b) Sand bath method (c) Calcium carbide method (d) Pycnometer method

12. If the voids of a soil mass are full of air only, the soil is termed as
(a) Air entrained soil (b)Partially saturated soil (c) Dry soil (d) None of the above

13. The ratio of volume of voids to the total volume of the soil mass is called:
(a) Air content (b) Porosity (c) Voids ratio d) All the above

14. Pycnomeyter is used to determine.
(a) Water content and voids ratio (b) Specific gravity and dry density
(c) Water content and specific gravity (d) None of the above

15. A sample of saturated clay has a porosity of 0.562, the void ratio of the clay is
(a) 1.283 (b) 0.438 (c) 1.779 (d) 0.360

16. If the sp.Gr.of the soil is represented by G and the void ratio is e, the hydraulic gradient I is expressed as
(a) G -1 /1+e (b) G+1/1-e (c)1-G/1+e (d)1+G/1+e

17. Pick up the incorrect statement from the following
(a) Well-graded coarse-grained soil can be compacted to a very high density as compared to find grained soil
(b) The dry density decreases after attaining optimum moisture content
(c) By compacting at a high enough water content, we can produce solid at 100% saturation
(d) None of the above

18. A soil has percentage air voids of the order of 305. It has a porosity of 0.4 The air content of that soil shall be:
(a) 0.75 (b) 0.12 (c) 1.33 (d) 0.70

19. Void ratio of a soil is 0.9 its porosity shall be:
(a) 0.45 (b) 0.47 (c) 0.57 (d) 0.53

20. The volume of voids to the total volume soil is known as
(a) Porosity (b) Void ratio (c) Air ratio (d) Air content

21. The value of compression index for a remoulded sample, whose liquid limit is 50%, is
(a) 0.028 (b) 0.28 (c) 0.36 (d) 0.036

22. When the plastic limit of a soil is greater than the liquid limit, then the plasticity index is reported as:
(a) Negative (b) Zero (c) Non-plastic (d) None of the above

23. The moisture content of soil below which the soil volume become constant is called the
(a) Liquid limit (b) Plastic limit (c) Shrinkage limit (d) all of these

24. A negative value of the group index of a soil is reported as:
(a) A positive value of the same magnitude dropping the negative sign (b) Zero
(c) Negative value, as GI may be negative (d) GI is reported as non-existent

25. A soil with a plasticity index equal to zero may be called as:
(a) Non-plastic (b)Low plastic (c)Medium plastic (d)High plastic

26. The ratio of plasticity index and flow index of soil is called:
(a) Strength index (b) Liquidity index (c) Toughness index (d) Consistency index

27. The ratio Liquid limit – Water content / Plastic index for a soil mass is called
(a) Liquidity index (b) Shrinkage ratio (c) Consistency index (d) Toughness index

28. Relative density of compacted dense sand is approximately equal to
(a) 0.4 (b) 0.6 (c) 0.95 (d) 1.20

29. Specific gravity has a unit
(a) N/m^3 (b) No unit-dimensionless (c) g/cc (d) KN/m^3

30. When the plastic limit of a soil is greater than the liquid limit, then the plasticity index is reported as:
(a) 0 (b) Non-plastic (c) 1 (d) Negative

31. A pycnometer is used to determine:
a) Water content and void ratio (b) Specific gravity and dry density
(c) Water content and specific gravity (d) Void ratio and dry density

32. Gravel and sand belongs to the following category of soils:
(a) Expansive (b) Marine (c) Alluvial (d) Cohesive

33. A soil has an average particles size of 2.0 mm. It is predominantly:
(a) Gravel (b) Sand (c) Silt (d) Clay

34. The coefficient of permeability of clay is not more than
a) 1 cm/sec (b) 1 X 10^{-2} cm/sec (c) 1 X $10^{-}4$ cm/sec (d) 1 X $10^{-}6$ cm/sec

35. Stoke is the unit of
(a) Dynamic viscosity (b) Kinematic (c)Specific volume (d) Specific weight

36. Physic properties which influence permeability are:
(a) Viscosity only (b) Unit weight only (c) Both viscosity and unit weight (d) None of the above

37. The meniscus and dispersing agent corrections, in the hydrometer analysis, respectively are
(a) Positive and negative (b) Negative and positive
(c) Positive and positive (d) Negative and negative

38. An overall value of the coefficient of permeability of a soil deposit for a large area may be determined by:
(a) Constant head permeability test (b) Variable head permeability test
(c) Pumping out tests (d) Pumping in tests

39. The expression for the discharge (Q) through a flow net isotropic soil is given by:
(a) Q = KH x NF/ND (b) Q = KH √NF/ND (c) Q = KH $(NF/ND)^2$ (d) Q = KH $(NF/ND)^3$

40. Standard penetration resistance in very stiff clays lies between:
(a) Lies b/w 2 and 4 (b) Lies b/w 4 and 8 (c) Lies b/w 8 and 15 (d) Lies b/w 15 and 30

41. For determining the ultimate bearing capacity of soil the recommended size of square bearing plate used in plate load test is 30-75 cm with a minimum thickness of:
(a) 20 mm (b) 5 mm (c)50 mm (d) None of these

42. The ultimate consolidation settlement of a structure resting on a soil
(a) Decreases with the increase in the initial voids ratio
(b) Decreases with the decrease in the plastic limit
(c) Increases with the increase in the initial voids ratio
(d) Increase with the decrease in the porosity of the soil

43. The coefficient of consolidation is used for evaluating:
(a) Stress in the soil (b) Total settlement
(c) Over consolidation ratio (d) Time rate of settlement

44. The rate of consolidation.
(a) Increase with decrease in temperature (b) Increase with increase in temperature
(c) Is independent of temperature (d) All the above

45. For routine consolidation test is laboratory, the thickness of the specimen is
(a) 10 mm (b) 20 mm (c) 40 mm (d) 60 mm

46. The consolidation time for soils
(a) Increase with increasing compressibility (b) Decrease with the increasing permeability
(c) Is independent of the stress change (d) All of the above

47. The unit of the coefficient of consolidation is
(a) cm^2/sec (b) cm^3/sec (c) $gm/cm^2/sec$ (d) gm-cm/sec

48. The shearing strength of a cohesion less soil depends on:
(a) Dry density (b) Rate of loading (c) Confining pressure (d) All of the above

49. The strength of a soil is usually identified by
(a) Direct tensile stress (b) Direct compressive stress
(c) Ultimate shear stress (d) Effective stress

50. The useful method of finding the shear strength of very plastic cohesive soils is by means of
(a) Cone test b) Penetration test (c) Vane shear test (d)Torsional shear test