Civil Engineering Department

Subject- Geotechnical Engineering-I (CBCGS/ CBCGS-H)

Q.no	Practice Question
1	Effective stress on soil (A) Increases voids ratio and decreases permeability (B) Increases both voids ratio and permeability (C) Decreases both voids ratio and permeability (D) Decreases voids ratio and increases permeability
2	Hydrometer readings are corrected for: (A) Temperature correction (B) Meniscus correction (C) Dispersing agent correction (D) Temperature, meniscus and dispersing agent corrections
3	Coefficient of permeability of soil (A) Does not depend upon temperature (B) Increases with the increase in temperature (C) Increases with the decrease in temperature (D) None of the above
4	The ratio of volume of air voids to the volume of total voids, is known as (A) Air content (B) Percentage air voids (C) Percentage voids (D) Porosity
5	During seepage through a soil, direction of seepage is always

	(A) Parallel to equipotential lines (B) Perpendicular to stream lines (C) Perpendicular to equipotential lines (D) None of these
6	The property of a soil which allows it to be deformed rapidly without rupture, elastic rebound and also a volume change, is known A) Porosity (B) Plasticity (C) Permeability (D) Ductility
7	With the increase in the amount of compaction energy (A) Optimum water content increases but maximum dry density decreases (B) Optimum water content decreases but maximum dry density increases (C) Both optimum water content and maximum dry density increase (D) Both optimum water content and maximum dry density decrease
8	260 g of wet soil was taken in a pycnometer jar of weight 400 g in order to find the moisture content in the soil, with specific gravity of soil particles 2.75. The weight of soil and remaining water filled in pycnometer without air bubbles was 1415 g and the weight of pycnometer filled with water alone was 1275 g. The moisture content in the soil is (A) 24.2 % (B) 18.2 % (C) 53.8 % (D) None of these
9	A flow net may be utilised for the determination of (A) Exit gradient (B) Seepage (C) Hydrostatic pressure (D) All the above Answer: Option D

10	Sensitivity of a soil can be defined as (A) Percentage of volume change of soil under saturated condition (B) Ratio of compressive strength of unconfined undisturbed soil to that of soil in a remoulded state (C) Ratio of volume of voids to volume of solids (D) None of the above
11	Plasticity index is defined as the range of water content between (A) Liquid and plastic limit (B) Plastic limit and semi solid limit (C) Semi-solid limit and liquid limit (D) Liquid limit and solid limit
12	If the natural moisture content, the liquid limit and plastic limit of a soil sample are stated as 30.5%, 42.5% and 22.5% respectively, the ratio of liquidity index and plastic index, is (A) 1/3 (B) ½ (C) 2 (D) 2½
13	The angle between the directions of the failure and the major principal plane, is equal to (A) 90° + effective angle of shearing resistance (B) 90° + half of the angle of shearing resistance (C) 45° - half of the angle of shearing resistance (D) 45° + half of the angle of shearing resistance
14	Residual soils are formed by (A) Glaciers (B) Wind (C) Water (D) None of the above
15	If water content of a soil is 40%, G is 2.70 and void ratio is 1.35, the degree of saturation is

	(A) 70 % (B) 75 % (C) 80 % (D) 85 %
16	Stoke's law is valid only if the size of particle is (A) Less than 0.0002 mm (B) Greater than 0.2 mm (C) Between 0.2 mm and 0.0002 mm (D) All of the above
17	Pick up the correct statement from the following: (A) When stress decreases, void, ratio decreases (B) When stress decreases, coefficient of permeability decreases (C) When stress decreases, coefficient of volume change decreases (D) When stress decreases void ratio, coefficients of permeability and volume change decrease
18	If the natural water content of soil mass lies between its liquid limit and plastic limit, the soil mass is said to be in (A) Liquid state (B) Plastic state (C) Semisolid state (D) Solid state
19	The water content in a soil sample when it continues to lose weight without losing the volume, is called (A) Shrinkage limit (B) Plastic limit (C) Liquid limit (D) Semi-solid limit
20	The ratio of the weight of water to the weight of solids in a given mass of soil, is known (A) Porosity

	(B) Specific gravity (C) Void ratio (D) Water content
21	In a liquid limit test, the moisture content at 10 blows was 70% and that at 100 blows was 20%. The liquid limit of the soil, is (A) 35 % (B) 50 % (C) 65 % (D) None of these
22	If is G specific gravity of sand particles, is porosity, the critically hydraulic gradient (A) ic = (G + 1)/(1 - e) (B) ic = (G + 1)/(1 + e) (C) ic = (G - 1)/(1 + e) (D) ic = (G - 1)/(1 - e)
23	The quantity of seepage of water through soils is proportional to (A) Coefficient of permeability of soil (B) Total head loss through the soil (C) Neither (a) nor (b) (D) Both (a) and (b)
24	Stoke's law states that the velocity at which a grain settles out of suspension, the other factors remaining constant, is dependent upon (A) Shape of grain (B) Weight of grain (C) Size of grain (D) Shape, size and weight of grain
25	A soil sample of mass specific gravity 1.92 has moisture content 30%. If the specific gravity of solids is 2.75, the degree of saturation, is (A) 95.4 %

	(B) 95.5 % (C) 95.6 % (D) 95.7 %