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Daily Class – 8:00 PM

**Q : 1) Water formed transported soil is:**

**A : Loess**

**B : Glacier**

**C : Alluvial**

**D : Marine**

**Q : 2) Which one in the following list does not possess plasticity?**

**A : Bentonite**

**B : Kaolinite**

**C : Rock flour**

**D : Fat clay**

**Q : 3) The soil transported by wind is called-**

**A : Aeolian soil**

**B : Marine soil**

**C : Alluvial soil**

**D : Lacustrine soil**

**Q : 4) The collapsible soil is associated with:**

**A : Marine sands**

**B : River boulder material**

**C : Loess**

**D : Black cotton soils**



**Q : 5) Flocculent structure is found in**

**A : Gravels**

**B : Coarse sands**

**C : Silts**

**D : Clays**

**Q : 6) A soil composed of loose granular graded material which can be scoured off with the same ease with which it is deposited is known as-**

**A : Silty loam**

**B : Incoherent alluvium**

**C : Sandy clay**

**D : Regime silt**

**Q : 7) Match List-I with List-II and select the correct answer using the codes given below the lists:**

List-I (soil type)	List-II (characteristic)
A. Oolitic sand	1. Under-consolidated
B. Biogenetic sand	2. Rounded
C. Calcareous clay	3. Cemented
D. Soft clay	4. Crushing

**A : 2, 4, 3, 1**

**B : 2, 1, 3, 4**

**C : 2, 1, 4, 3**

**D : 2, 3, 4, 1**

**Q : 8) The black cotton soils which exhibit high shrinkage and expansive qualities due to the presence of clay minerals of group:**

**A : Halloysite**

**B : Illite**

**C : Kaolinite**

**D : Montmorillonite**



**Q : 9) Consider the following statement in the context of Aeolian soils:**

- (i) The soil has low density and low compressibility**
- (ii) The soil is deposited by wind**
- (iii) The soil has large permeability**

**A : (i), (ii), and (iii)**

**B : (ii) and (iii)**

**C : (i) and (iii)**

**D : (i) and (ii)**

**Q : 10) The soils most susceptible to liquefaction are-**

**A : Saturated dense sands**

**B : Saturated fine and medium sands of uniform particle size**

**C : Saturated clays of uniform size**

**D : Saturated gravels and cobbles**

**Q : 11) Which soil is classified according to geological process of formation?**

**A : Alluvial soil**

**B : Senile soil**

**C : Mature soil**

**D : Youthful soil**

**Q : 12) Which of the following soil contains high organic content?**

**A : Peat**

**B : Varved clay**

**C : Silty clay**

**D : Well graded sand**



**Q : 13) Drilling mud is usually a mixture of**

**A : Bentonite clay and water**

**B : China clay and water**

**C : Fine silt, fine sand and water**

**D : Fine silt and water**

**Q : 14) Which of the following is a deposit of glacial origin consisting of un-assorted mixture of boulders and clay particles?**

**A : Loess**

**B : Talus**

**C : Till**

**D : Eskers**

**Q : 15) The behavior of sand mass to cause liquefaction during an earthquake largely depends on**

**A : Member of stress cycles**

**B : Amplitude of earthquake**

**C : Angle of internal friction of sand**

**D : Relative density of sand**

**Q : 16) A soil sample is partially saturated. Its natural moisture content was found to be 22% and bulk density 2 gm/c.c. If the specific gravity of the solid particles is 2.65 and the density of water is 1 gm/c.c, the void ratio of the sample is**

**A : 0.3825**

**B : 0.6165**

**C : 0.8188**

**D : 0.9122**



**Q : 17) A soil sample has a shrinkage limit of 10% and specific gravity of soil solids as 2.7. The porosity of the soil at shrinkage limit is:**

**A : 21.2%**

**B : 30%**

**C : 52.7%**

**D : 70%**

**Q : 18) Void ratio of soil is the ratio of the:**

**A : Volume of voids to volume of soil solids**

**B : Volume of voids to volume of water**

**C : Volume of soils solids to volume of voids**

**D : Volume of voids to total volume**

**Q : 19) Degree of saturation (S) of a soil mass is expressed in terms of volume of water ( $V_w$ ) and volume of voids ( $V_v$ ) as**

**A :  $S = \frac{(V_v V_w)}{100}$**

**B :  $S = 100 \left( \frac{V_w}{V_v} \right)$**

**C :  $S = 100 \left( \frac{V_v}{V_w} \right)$**

**D :  $S = 100 (V_v - V_w)$**

**Q : 20) Which of the following gives the correct decreasing order of the densities of a soil sample?**

**A : Saturated, submerged, wet, dry**

**B : Saturated, wet, submerged, dry**

**C : Saturated, wet, dry, submerged**

**D : Wet, saturated, submerged, dry**

**Q : 21) The dry density of a soil is  $1.5 \text{ g/cm}^3$ . If the saturation water content is 50%, then its saturated density and submerged density will respectively be**

**A :  $1.5 \text{ g/cm}^3$  and  $1.0 \text{ g/cm}^3$**

**B :  $2.0 \text{ g/cm}^3$  and  $1.9 \text{ g/cm}^3$**

**C :  $2.25 \text{ g/cm}^3$  and  $1.25 \text{ g/cm}^3$**

**D :  $1.509 \text{ g/cm}^3$  and  $1.509 \text{ g/cm}^3$**

**Q : 22) Relative density of a compacted dense sand is approximately equal to**

**A : 0.4**

**B : 0.6**

**C : 0.95**

**D : 1.20**

**Q : 23) If the water content of a fully saturated soil mass is 100%, then the void ratio of the sample is:**

- A : Less than specific gravity of soil**
- B : Equal to specific gravity of soil**
- C : Greater than specific gravity of soil**
- D : Independent of specific gravity**



**Q : 24) The void ratio at the densest, loosest and the natural states of a sand deposit are 0.2, 0.6 and 0.4 respectively. Relative density for this deposit will be-**

**A : 90%**

**B : 80%**

**C : 50%**

**D : 25%**

**Q : 25) An engineer find suitable sand for embankment filling observes that a particular type of 0% what can be conclude from this?**

**A : Sand is in its loosest state**

**B : Sand is in its densest state**

**C : Sand is in intermediate state of compaction**

**D : This sand cannot be further compacted**

**Q : 26) In soil, the value of which of the following can be more than 100%?**

- (i) Air content**
- (ii) Water content**
- (iii) Void ratio**
- (iv) Porosity**

**A: Only (i)**

**B : (i) and (ii)**

**C : (ii) and (iii)**

**D : (ii), (iii) and (iv)**

**Q : 27) For a given soil mass with a water content of 15%, the void ratio is 0.55 and specific gravity of soil particles is 2.6. The degree of saturation of soil is**

**A : 45.60**

**B : 55.80**

**C : 70.90**

**D : 90.20**

**Q : 28) Specific gravity is defined as**

**A : Ratio of mass of solid to the mass of equal volume of water at  $-4^{\circ}\text{C}$ .**

**B : Ratio of weight of solid to the weight of equal volume of water at  $0^{\circ}\text{C}$ .**

**C : Ratio of mass of solid to the mass of equal volume of water at  $0^{\circ}\text{C}$ .**

**D : Ratio of mass of solid to the mass of equal volume of water at  $4^{\circ}\text{C}$ .**

**Q : 29) Dry unit weight is:**

**A : The weight of solids to the volume of solids**

**B : The weight of solids per unit total volume**

**C : The total weight per unit total volume**

**D : The saturated weight of solids per unit total volume**

**Q : 30) The unconfined compressive strength of a clay in un-disturbed and disturbed state was found to be 1180 kN/sqm and 10 kN/sqm respectively. Based on sensitivity, the soil may be classified as:**

**A : In-sensitivity**

**B : Sensitivity**

**C : Quick clays**

**D : Extra sensitivity clays**



**Q : 31) The shear strength of a soil in the plastic limit state is:**

**A : Maximum**

**B : Zero**

**C : Equal to saturated soil strength**

**D : Very little**

**Q : 32) The uniformity coefficient ( $D_{60}/D_{10}$ ) for the sand used in slow sand filters should be.**

**A : 6 to 7**

**B : 3 to 5**

**C : 1.5 to 3**

**D : 1 to 1.5**

**Q : 33) For naturally deposited clay, the ratio of unconfined compression strength in undisturbed state to that in remoulded state is called:**

- A : Degree of sensitivity**
- B : Degree of saturation**
- C : Degree of thixotropy**
- D : Degree of compaction**

**Q : 34) A given soil sample has the following given size analysis**

**< 2.00 mm – 80%**

**< 0.66 mm – 60%**

**< 0.075 mm – 30%**

**< 0.002 mm – 2%**

**< 0.005 mm – 10%**

**A : Skip graded**

**B : Uniformly graded**

**C : Well graded**

**D : Average graded**

**Q : 35) A geotechnical engineer tests a soil and find that its liquidity index is 1.2. Which of the following states is the soil in?**

**A : At liquid limit**

**B : At plastic limit**

**C : In liquid state**

**D : In oven dry state**

**Q : 36) The most accurate method of determining the water content in a sample of soil is:**

**A : Sand bath method**

**B : Calcium carbide method**

**C : Oven drying method**

**D : Alcohol method**

**Q : 37) The gain in strength of soil with passage of time after it has been remolded is known as:**

**A : Plasticity**

**B : Sensitivity**

**C : Activity**

**D : Thixotropy**



**Q : 38) Sensitivity of a soil is defined as the ratio of the**

**A : Undisturbed strength to the remoulded strength at same water content**

**B : Undisturbed strength to the remoulded strength at 100% moisture content**

**C : Remoulded strength to the undisturbed strength at same water content**

**D : Remoulded strength to undisturbed strength at 100% moisture content**

**Q : 39) A soil has liquid limit to 70%, plastic limit of 30% and it has a natural moisture content of 50%. The liquidity index of a soil is**

**A : 1.5**

**B : 1**

**C : 0.5**

**D : 2**

**Q : 40) The numerical difference between liquid limit and plastic limit is:**

**A : Liquidity index**

**B : Plasticity index**

**C : Consistency index**

**D : Flow index**

**Q : 41) Liquid limit test is performed on soil samples passing through IS sieve of size**

**A : 25  $\mu$**

**B : 2 mm**

**C : 425  $\mu$**

**D : 250  $\mu$**

**Q : 42) If the plasticity index of a soil mass is zero, the type of soil is**

**A: Sand**

**B: Clay**

**C: Silt**

**D: Clayey silt**

**Q : 43) Plastic limit is the water content\_\_\_\_\_**

**A: Mixed in the soil to make it plastic**

**B: Removed from the soil to make it plastic**

**C: Below which the soil stops behaving as a plastic material**

**D: Above which the soil stops behaving as a plastic material**

**Q : 44) An oven dried soil mass of 200 gm is placed in pycnometer and completely filled with water. Combined mass of bottle, soil and water is 1605 gm. Calculate specific gravity of soil if pycnometer with water alone has weight of 1480 gm-**

**A: 2.63**

**B: 2.67**

**C: 2.67**

**D: 2.69**



**Q : 45) If a soil is dried beyond its shrinkage limit, this sample will show-**

**A: No volume change**

**B: Moderate volume change**

**C: Low volume change**

**D: Large volume change**

**Q : 46) The minimum water content at which a soil just begins to crumble, when rolled into threads 3 mm in diameter is known as the:**

**A: Shrinkage limit**

**B: Plastic limit**

**C: Consistency limit**

**D: Liquid limit**

**Q : 47) In hydrometer analysis for a soil mass**

**A: Both meniscus correction and dispersing agent correction are additive**

**B: Both meniscus correction and dispersing agent correction are subtractive**

**C: Meniscus correction is additive and dispersing agent correction is subtractive**

**D: Meniscus correction is subtractive and dispersing agent correction is additive**

**Q : 48) Toughness index is defined as the ratio of**

**A: Plasticity index to consistency index**

**B: Liquidity index to flow index**

**C: Consistency index to liquidity index**

**D: Plasticity index to flow index**

**Q : 49) If the sensitivity of a soil is between 4 and 8, then it will be called as:**

**A: Insensitive soil**

**B: Less sensitive soil**

**C: Sensitive soil**

**D: Extra sensitive soil**

**Q : 50) The property of a soil which allows it to be deformed rapidly, without elastic rebound and without volume changes is called as:**

**A: Yielding**

**B: Strain softening**

**C: Strain hardening**

**D: Plasticity**

**Q : 51) The sum of specific yield and specific retention is equal to**

**A: Porosity**

**B: Permeability coefficient**

**C: Storage coefficient**

**D: Saturation percentage**

**Q : 52) In comparison to Atterberg limits of normal soil, the expansive soils which of the following:**

- (i) More liquid limit**
- (ii) Less plastic limit**
- (iii) Less shrinkage limit**
- (iv) More volumetric shrinkage**

**Select the correct answers using the codes given below:**

**A: (i), (ii), (iii) and (iv)**

**B: (i), (iii) and (iv)**

**C: (ii), (iii) and (iv)**

**D: (i), (ii) and (iv)**



**Q : 53) If the consistency index of soil is in the range of 50-75% then the soil is said to be**

**A: Soft**

**B: Medium**

**C: Stiff**

**D: Hard**