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Q :) Negative pore pressure can develop in _____

A : Loose sand and over-consolidated clays

B : Dense sand and over-consolidated clays

C : Loose sand and normally consolidated clay

D : Dense sand and normally consolidated caly

Q :) For fine grained cohesive soils, method used for drainage is

A : Ditches and sumps

B : Shallow well system

C : Deep well system

D : Electro osmosis

Q :) Which of the following is the correct sequence of plasticity of minerals in soil in an increasing order?

A : Kaolonite, silica, montmorillonite, illite

B : Kaolinite, silica, illite, montmorillonite

C : Silica, kaolinite, illite, montmorillonite

D : Silica, kaolinite, montmorillonite, illite

Q :) The gas formed by the reaction of calcium carbide with water is:

A : Sulphur dioxide

B : Acetylene

C : Carbon dioxide

D : Ethane

Q :) Which among the following water content determination method is an in-situ test?

A : Sand bath method

B : Radiation method

C : Oven drying method

D : Calcium carbide method

Q :) A soil has a bulk density of 17.6 kN/m^3 and water content 10% if void ratio remains constant then the bulk density for water content of 20% will be

A : 16.13 kN/m^3

B : 19.20 kN/m^3

C : 19.36 kN/m^3

D : 17.6 kN/m^3

Q :) The property of sand by virtue of which it takes any desired pattern shapes under pressure and retains it after the pressure is removed is known as :

A : Plasticity

B : Flow ability

C : Porosity

D : Collapsibility

Q :) A dry soil has mass specific gravity of 1.35 if the specific gravity of solids is 2.7 then the void ratio will be

A : 0.5

B : 1.0

C : 1.5

D : 2.0

Q :) The diameter of the sieve used for finding liquid limit is

A : 375 microns

B : 250 microns

C : 125 microns

D : 425 microns

Q :) Identify the consistency limit corresponding to the smallest water content at which the soil is still in liquid state.

A : Consistency

B : Plastic limit

C : Liquid limit

D : Shrinkage limit

Q :) If the plasticity index of soil lies above the A line.

Its permeability is:

A : Medium

B : Low

C : High

D : Very low

Q :) The liquid limit is determined from casagrande apparatus. The apparatus consists of a semispherical brass cup that is repeatedly dropped onto a hard rubber base from a height of :

A : 10 mm

B : 15 mm

C : 5 mm

D : 20 mm

Q :) According to standard test method ASTM D - 4318, the moisture content (the liquid limit of a device, at which a groove closure of _____ occurs at _____ blows.

A : 12.7 mm, 25

B : 12.7 mm, 20

C : 11.7 mm, 20

D : 11.7 mm, 25

Q :) Shelby tube is one of most widely used devices for-

A : Drilling rocks and cobbles

B : Measuring effective stress

C : Wash borings

D : Collecting undisturbed soil samples

Q :) Which one of the following method is not used for measuring in-situ density of compacted soils?

A : Sand replacement method

B : Water replacement method

C : Nuclear density gauge method

D : Cassagrande's method

Q :) Find the shrinkage ratio of a soil sample whose plastic limit and liquid limit values are 30% and 42%, respectively, and the values of percentage of volume change from liquid limit to dry state and plastic limit to dry state are 35% and 22%, respectively, of dry volume.

A : 0.965

B : 1.83

C : 0.74

D : 1.083

Q :) Which of the following represents the range of plasticity index for silt?

A : 10 to 15

B : 15 to 25

C : 25 to 35

D : 35 to 45

Q :) The thixotropy of soil is the phenomenon of:

A : Thickening of soil particles with water

B : Cohesion of soil particles in optimum moisture

C : Rotation of soil particles into a more stable state which occurs the remoulding process.

D : None of these

Q :) The unified soil classification system, was originally developed by _____ .

A : Terzaghi

B : Atterberg

C : Mohr

D : Cassagrande

Q :) The grain size (mm) of medium grained sand lies between

A : 0.425 to 0.075

B : 2.0 to 0.425

C : 4.75 to 2.0

D : 20 to 4.75

Q :) As per the Indian soil classification system. 'MI' is the symbol for

A : Inorganic silt of high plasticity

B : Inorganic silt of high compressibility

C : Inorganic silt of medium plasticity

D : None of the above

Q :) According to IS classification soil can be classified in to:

A : 16 groups

B : 18 groups

C : 3 groups

D : 8 groups

Q :) Consistency limit measured by the instrument, is known as:

A : Plate load test

B : Odometer

C : Coastrange's apparatus

D : Hydrometer

Q :) As per the Indian standard soil classification system, a sample of silty clay with liquid limit of 40% and plasticity index of 28% is classified as

A : CH

B : CI

C : CL

D : CL-ML

Q :) If the material of a plane of a coastrange, liquid border device is soft in comparison to the standard hard rubber on which a cup filled with clay paste falls, then

A : Liquid limit of soil always rise.

B : The liquid limit of soil declines.

C : The liquid limit of clay may rise

D : Liquid limit of soil always declines.

Q :) Which among the following determines permeability for cohesion less soil?

A : Pumping method

B : Falling head method

C : Constant head method

D : None of these

Q :) A flow net cannot be utilised for which of the following?

A : Determination of seepage

B : Determination of seepage pressure

C : Determination of hydrostatic pressure

D : determination of density of soil layers

Q :) A flow net (per meter length) gives $N_r = 3$ and $N_b = 30$ for a net head of 10 m. Calculate discharge if $K = 1 \times 10^{-6}$ m/sec.

A : 0.003 lps

B : 0.004 lps

C : 0.002 lps

D : 0.001 lps

Q :) A clay in flocculated structure has

A : low permeability, low strength and high compressibility

B : high permeability, high strength and low compressibility

C : low permeability, high strength and low compressibility

D : High permeability, high strength and high compressibility

Q :) Consider the following statements:

The coefficient of permeability 'K' depends upon

- (i) Void ratio of the soil**
- (ii) Duration of flow**
- (iii) Diameter of the soil**
- (iv) Shape of the particles**

Which of the above statement is correct?

A : i, ii, iii, iv

B : ii & iii only

C : i, iii & iv only

D : iii & iv only



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