



## CIVIL ENGINEERING QUESTIONS PRACTICE



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: 1) Match List I (Soil classification symbol) with List II (Soil Property) and select the correct answer using the code given below the lists:

List – I

A: GW

B: SW

C: ML

D: CL

Codes:

A : A – 1, B – 2, C – 4, D – 3

B : A – 2, B – 1, C – 3, D – 4

C : A – 2, B – 1, C – 4, D – 3

D : A – 1, B – 2, C – 3, D – 4

List – II

1: Soil having uniformity coefficient  $> 6$

2: Soil having uniformity coefficient  $> 4$

3: Soil having low plasticity

4: Soil having low compressibility



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Q: 2) Match List I (Soil) with List II (Type) and select the correct answer using the code given below the lists:

List – I

A: Fine sand

B: Silt

C: Peat

Codes:

A : A – 3, B – 2, C – 1

B : A – 4, B – 3, C – 1

C : A – 3, B – 1, C – 2

D : A – 2, B – 3, C – 4

List – II

1: Expansive soil

2: Coarse grained soil

3: Fine grained soil

4: Organic soil

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Q: 3) Consider the following properties for clays X and y.

S. No	Properties	Clay x (%)	Clay y(%)
1	Liquid limit	42	56
2	Plastic limit	20	34
3	Natural water content	30	50

Which of the clays, X or Y, experiences larger settlement under identical loads; is more plastic; and is softer in consistency?

A : X, Y and X

B : Y, X and X

C : Y, X and Y

D : X, X and Y

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Q: 4) A soil has liquid limit = 35, plastic limit = 20, shrinkage limit = 10 and natural moisture content = 25%. What will be its liquidity index, plasticity index and shrinkage Index?

A : 0.67, 15 and 25

B : 0.33, 15 and 10

C : 0.67, 25 and 15

D : 0.33, 20 and 15



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Q: 5) In a wet soil mass, air occupies one-sixth of its volume and water occupies one-third of its volume. The void ratio of the soil is

A : 0.25

B : 0.50

C : 0.75

D : 1.0



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Q: 6) Consider the following statements:

1: Sensitivity of a natural soil deposit cannot be less than 1.0

2: A saturated loose sand deposit liquifies when water flows through it in upward direction under critical hydraulic gradient.

3: A quick clay has very high sensitivity.

Which of the above statements are correct?

A : 1, 2 and 3

B : 1 and 2 only

C : 1 and 3 only

D : 2 and 3 only

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Q: 7) Consider the following statements:

1: At shrinkage limit, the soil remains fully saturated.

2: The shear strength of all soils at liquid limit is the same.

3: The shear strength of all soils at plastic limit is the same.

Which of the above statements is/are correct?

A : 1, 2 and 3

B : 1 and 2 only

C : 2 and 3 only

D : 1 only



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Q: 8) Consider the following statements:

1: The minimum value of group index for a soil can be taken as zero.

2: The maximum possible value of group index for a soil is twenty.

Which of the above statements is/are correct?

A : Both 1 and 2

B : 1 only

C : 2 only

D : Neither 1 nor 2



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Q: 9) Match List-I (Measuring Device) with List-II (Soil Parameter) and select the correct answer using the codes given below the lists:

List – I

A: Pycnometer

B: Hydrometer

C: Oedometer

D: Permeameter

Codes:

A : A – 2, B – 4, C – 1, D – 3

B : A – 3, B – 1, C – 4, D – 2

C : A – 2, B – 1, C – 4, D – 3

D : A – 3, B – 4, C – 1, D – 2

List – II

1: Compressibility

2: Permeability

3: Specific gravity

4: Particle size analysis

Q: 10) On analysis of particle size distribution of a soil, it is found that  $d_{10} = 0.1$  mm,  $d_{30} = 0.3$  mm and  $d_{60} = 0.8$  mm. The uniformity coefficient and coefficient of curvature, as given by the particle size distribution curve, are respectively

A : 3 and 3

B : 2.67 and 1.125

C : 2.67 and 3

D : 8 and 1.125



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Q: 11) Consider the following statements:

1: Relative density is a meaningful parameter for all types of soils.

2: Relative density is a meaningful parameter only for cohesion soils.

3: Relative density is a better indicator of the denseness of an in-situ granular soil deposit than the void ratio.

Which of these statements are correct?

A : 1, 2 and 3

B : 1 and 2 only

C : 2 and 3 only

D : 1 and 3 only



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Q: 12) In a wet soil mass, air, occupies one-fourth of its volume and water occupies one-half of its volume. The void ratio of this soil is

A : 1

B : 2

C : 3

D : 4



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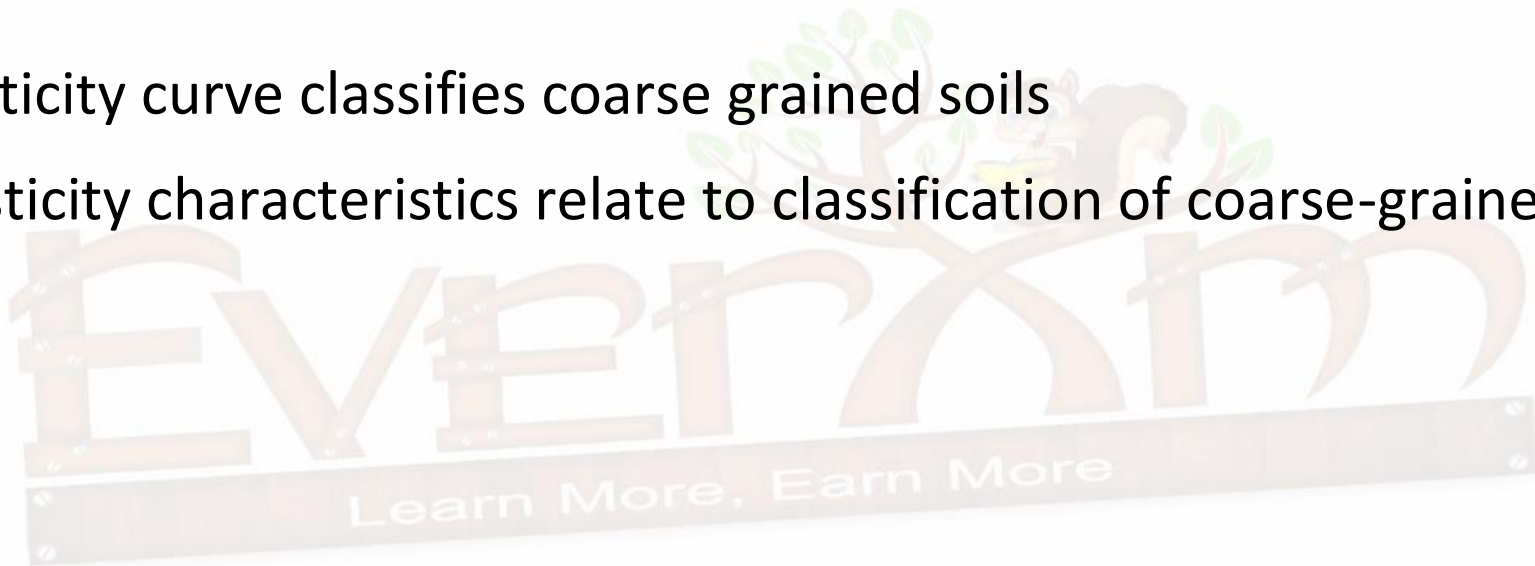
Q: 13) Which one of the following statements is correct?

A : Grain size is the primary criterion for classification of coarse, as well as fine- grained soil

B : Grain size is the primary criterion for classification of coarse-grained soils

C : Plasticity curve classifies coarse grained soils

D : Plasticity characteristics relate to classification of coarse-grained soils



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Q: 14) Consider the following statements:

1: A conspicuous break in the continuity of a grain size distribution curve indicates a mixture of soil from two different layers.

2: A steep grain size distribution curve indicates prevalence of nearly uniform grain size

3: A flat grain size distribution curve indicates certain range of passing grain sizes

Which of these statements are correct?

A : 1, 2 and 3

B : 2 and 3 only

C : 1 and 3 only

D : 1 and 2 only

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Q: 15) Consider the following statements:

1: Activity is a property typical of clay soils.

2: An activity value of 7 in a clay soil is indicative of the presence of montmorillonite mineral.

3: An activity value of 7 in a clay soil is indicative of the presence of illite mineral.

Which of these statements are correct?

A : 1, 2 and 3

B : 1 and 2 only

C : 1 and 3 only

D : 2 and 3 only



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Q: 16) A sample of sand has a volume of 1000 ml in its natural state. Its minimum volume when compacted is 750 ml. When gently poured into a measuring cylinder, its possible maximum volume is 1320 ml. What is the relative density?

A : 56

B : 52

C : 58

D : 60



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Q: 17) A saturated specimen of clay was immersed in mercury and displaced volume was 21.8 cc. The weight of the sample was 32.2 gm. After oven drying for 48 hours, weight reduced to 20.2 gm while volume came down to 11.6 cc. The shrinkage limit of the soil is

A : 7.9%

B : 8.0%

C : 8.9%

D : 9.8%



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Q: 18) A sand sample has a bulk density of  $20 \text{ kN/m}^3$  and a degree of saturation of 70%. If the specific gravity of soil grains is 2.65, the value of critical hydraulic gradient for the soil will be

A : 1.02

B : 1.05

C : 1.10

D : 1.15



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Q: 19) A soil sample has a porosity of 40%, and the specific gravity of solid is 2.70. if the soil is 50% saturated, the unit weight will be nearly

A : 22 kN/m<sup>3</sup>

B : 20 kN/m<sup>3</sup>

C : 18 kN/m<sup>3</sup>

D : 16 kN/m<sup>3</sup>



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Q: 20) Oven dry mass of a part of clay is 10.8 gm and mass of mercury displaced on immersion is 84.2 gm. If the specific gravity of solids is 2.72 and the density of the mercury is  $13.6 \text{ g/cm}^3$ , the shrinkage limit of the soil will be nearly

- (a) 12%
- (b) 15%
- (c) 18%
- (d) 21%



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