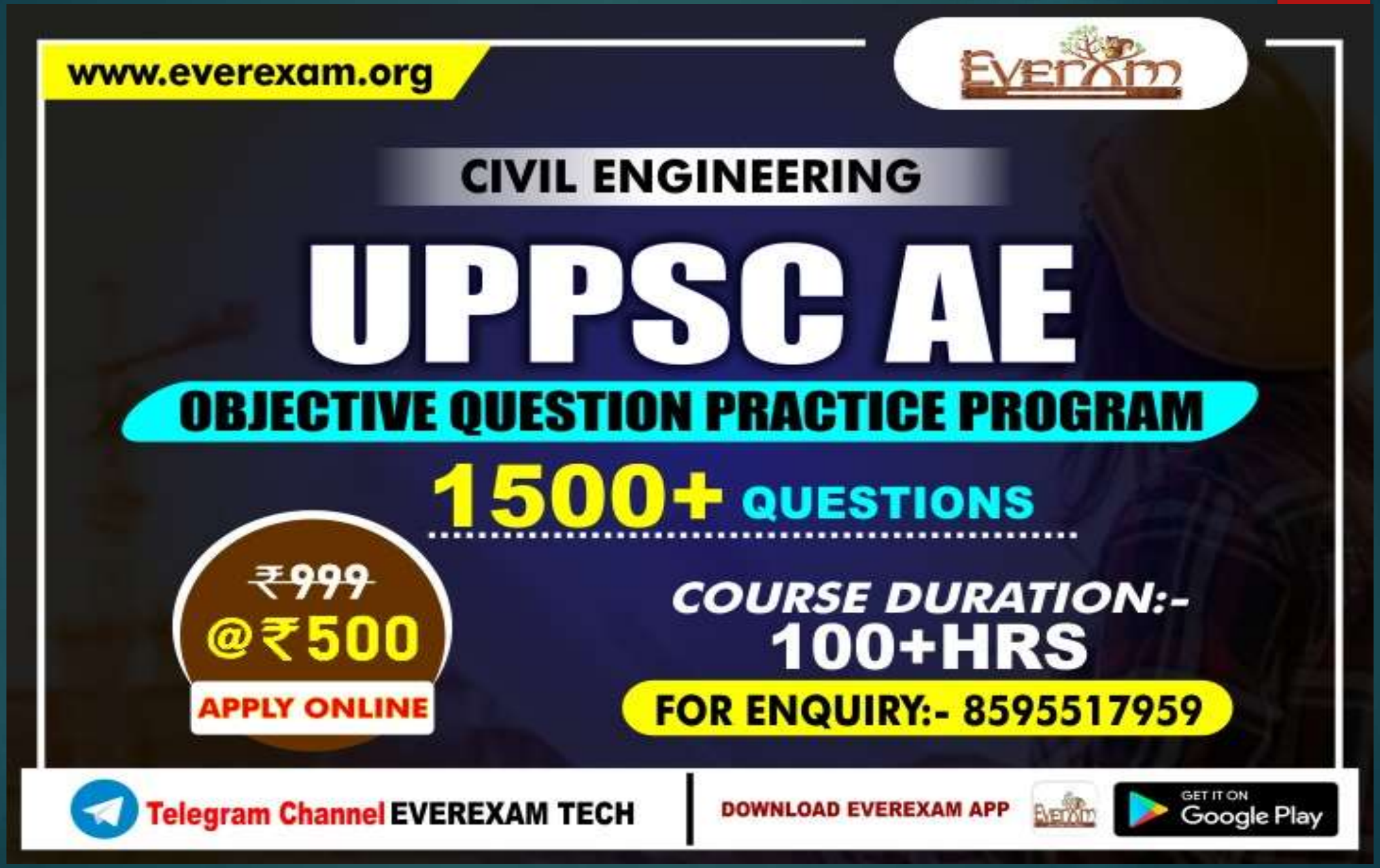
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Q: ) If σ 0' and σ represent initial and increased pressure; eo and e void ratios corresponding to initial and increased pressure ; and $C^0$ the compression index (dimensionless), then, the virgin compression curve as expressed by Terzaghi empirical formula is.

A : $e = e_0 + C_c \log_{10} \sigma/\sigma_0$

B : $e = e_0 - C_c \log_{10} \sigma/\sigma_0$

C : $e_0 = e - C_c \log_{10} \sigma/\sigma_0$

D : $e_0 = e + C_c \log_{10} \sigma/\sigma_0$

Q: ) A soil not fully consolidated under the existing overburden pressure, is called.

A : Pre-consolidated

B : Normally consolidated

C : Over-consolidated

D : None of these.

Q: ) The ratio of settlement at any time 't' to the final settlement, is known as.

A : Co-efficient of consolidation

B : Degree of consolidation

C : Consolidation index

D : Consolidation of undisturbed soil.

Q: ) 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,

Q: ) The maximum pressure which a soil can carry without shear failure, is called.

A : Safe bearing capacity

B : Net safe bearing capacity

C : Net ultimate bearing capacity

D : Ultimate bearing capacity.

Q: ) The maximum net pressure intensity causing shear failure of soil, is known.

A : Safe bearing capacity

B : Net safe bearing capacity

C : Net ultimate bearing capacity decreases

D : Ultimate bearing capacity.

Q: ) Pile foundations are generally preferred to for.

A : Bridge foundations

B : Sky scrapper buildings

C : Residential buildings

D : Runways.

Q: ) The minimum centre to centre distance of friction piles of 1 m diameter, is.

A : 2 m

B : 2 m to 3 m

C : 3 m to 4 m

D : 5 m.

Q: ) A pile is being driven with a drop hammer weighing 1800kg and having a free fall of 1.00 m. If the penetration with last blow is 5 mm, the load carrying capacity of the pile, according to the Engineering News formula, is.

A : 100 tonnes

B : 50 tonnes

C : 20 tonnes

D : 10 tonnes.

Q: ) A compacted soil sample using 10% moisture content has a weight of 200 g and mass unit weight of 2.0 g/cm$^3$. If the specific gravity of soil particles and water are 2.7 and 1.0, the degree of saturation of the soil is

A : 0.111

B : 0.556

C : 0.696

D : None of these.

Q: ) For determining the ultimate bearing capacity of soil, the recommended size of a square bearing plate to be used in load plate test should be 30 to 75 cm square with a minimum thickness of.

A : 10 mm

B : 15 mm

C : 20 mm

D : 25 mm.

Q: ) If dry density, water density and specific gravity of solids of a given soil sample are 1.6 g/cc, 1.84 g/cc, and 2.56 respectively, the porosity of the soil sample, is.

A : 0.375

B : 0.37

C : 0.38

D : 0.390.

Q: ) 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 : $\frac{1}{3}$

B : $\frac{1}{2}$

C : 2

D : $2\frac{1}{2}$.

Q: ) Pick up the incorrect statement from the following:

The line which contain montmorillonite minerals.

A : Swell more when wet

B : Shrink more when wet

C : Possess high plasticity

D : Posses high coefficient of internal coefficient

Q: ) Pick up the correct statement from the following:

A : Illite bond is weaker than kaolinite bond

B : Illite bond is stronger than montmorillonite bond

C : Illite do not swell when wet

D : All the above.

Q: ) Pick up the incorrect statement from the following:

A : Compaction has no effect on the structure of a soil

B : Permeability decreases with increase in the dry density of a compacted soil

C : A wet side compacted soil is more compressible than a dry side compacted soil

D : None of above.

Q: ) The intensity of vertical pressure at a depth Z directly below the point load Q on its axis of loading is:

A : $\frac{0.4775\,Q}{Z}$

B : $\frac{0.4775\,Q}{Z^2}$

C : $\frac{0.4775\,Q}{Z^3}$

D : $\frac{0.4775\,Q}{\sqrt{Z}}$

Q: ) The westergaard analysis is used for.

A : Sandy soils

B : Cohesive soils

C : Stratified soils

D : Clayey soils.

Q: ) The length/diameter ratio of cylindrical specimens used in triaxial test, is generally.

A : 1

B : 1.5

C : 2

D : 2.5

Q: ) The maximum value of effective stress in the past divided by the present value, is defined as over consolidation ratio (OCR). The O.C.R. of an over consolidated clay its value for quick clays is.

A : Less than 1

B : 1

C : More than 1

D : None of these.

Q: ) The ratio of the undrained strength in the undrained state to the undrained strength, at the same water content, in the remoulded state, is called the sensitivity of the clay. Its value for quick clays is.

A : 8

B : 12

C : 16

D : 20

Q: ) A stratum of clay 2 m thick will get consolidated 80% in 10 years. For the 80% consolidation of 8 m thick stratum of the same clay, the time required is

A : 100 years

B : 120 years

C : 140 years

D : 160 years

Q: ) Match List I with List II and select correct answer using codes given under the lists:

| List I | List II |
| --- | --- |
| A. Alluvial deposits | 1. Soil deposited under sea water |
| B. Lacustrine deposits | 2. Soil deposited in water lakes |
| C. Marine deposits | 3. Soil deposited in running water |
| D. Aeolin deposits | 4. Soil deposited by transportation by wind |

Codes:

A : A - 2, B - 3, C - 4, D - 1

B : A - 3, B - 2, C - 1, D - 4

C : A - 1, B - 2, C - 3, D - 4

D : A - 3, B - 2, C - 1, D - 4

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

| List I | List II |
| --- | --- |
| A. Clay | 1. 2.00 to 4.75 mm |
| B. Coarse sand | 2. 0.002 to 0.075 mm |
| C. Fine sand | 3. 0.075 to 0.425 mm |
| D. Silt | 4. 4.0 to 0.002 mm |

Codes:

**A :** A - 1, B - 3, C - 4, D - 2

**B :** A - 2, B - 1, C - 3, D - 4

**C :** A - 4, B - 1, C - 3, D - 2

**D :** A - 3, B - 1, C - 2, D - 4

# Q: ) Match List-I with List -II and select correct answer using codes given under the lists:

| List I | List II |
| --- | --- |
| A. Plasticity index | 1. Non-plastic material |
| B. Clean sand | 2. Shows no shear stress |
| C. Liquid state | 3. Difference of water contents at liquid limit and plastic limit |
| D. For zero plasticity index | 4. Plastic limit and liquid limit are equal |

Codes:

A : A - 1, B - 2, C - 3, D - 4

B : A - 3, B - 2, C - 4, D - 1

C : A - 3, B - 1, C - 2, D - 4

D : A - 4, B - 1, C - 2, D - 3

# Q: ) Match List I with List II and select correct answer using the codes given under the lists:

| List I | List II |
| --- | --- |
| A. Porosity | 1. Volume of air voids/volume of voids |
| B. Air content | 2. Weight of water/weight of solids |
| C. Water content | 3. Unit weight of soil solids/unit weight of water |
| D. Specific gravity | 4. Volume of voids/total volume of soil mass |

Codes:

A : A - 1, B - 2, C - 3, D - 4

B : A - 4, B - 1, C - 2, D - 3

C : A - 3, B - 2, C - 1, D - 4

D : A - 4, B - 3, C - 1, D - 2

# Q: ) Match list I with list II and select the correct answer using the codes given under the lists:

| List I | List II |
| --- | --- |
| A. Oven-drying method | 1. Most accurate laboratory method |
| B. Sand bath method | 2. For rough value of the water content |
| C. Calcium carbide methods | 3. For embankment soil |
| D. Pycnometer method | 4. For soil whose specific gravity is accurately known |

Codes:

A : A - 1, B - 4, C - 3, D - 2
B : A - 4, B - 3, C - 2, D - 1
C : A - 1, B - 2, C - 3, D - 4
D : A - 2, B - 3, C - 1, D - 4

Q: ) Consider the following statements regarding using dispensing agent for preparing soil suspension.

1. Sodium oxalate
2. Sodium silicate
3. Tetra sodium pyrophosphate
4. Sodium hexameta phosphate Of these statements:

A : 1, 2 and 3 are correct

B : 2, 3 and 4 are correct

C : 1, 3 and 4 are correct

D : 1, 2, 3 and 4 are correct.

Q: ) Consider the following statements regarding the compressibility of silts and clays:

1. Low compressibility if liquid limit is less than 30
2. Medium compressibility if liquid limit is greater than 30 and less than 50
3. High compressibility if liquid is greater than 50

Of these statements:

A : 1 alone is correct

B : 1 and 2 are correct

C : 2 alone is correct

D : 2 and 3 are correct

Q: ) As per ISI (18:1498-1970) the classification and identification of soils for general engineering purpose are:
1. Coarse grained soils contain total material by weight larger than 75 microns IS sieve size.
2. Fine grained soils contain total material by weight smaller than 75 micron 1S sieve size
3. Highly organic soils contain large percentages of fibrous organic matter. Of these statements:
A : 1 alone is correct
B : 2 alone is correct
C : 2 and 3 are correct
D : 1, 2 and 3 are correct.


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