गया माता दी

⇒ SOIL
⇒ R·C·C
⇒ BUILDING MATERIAL & Construction
⇒ STRENGTH OF MATERIAL
⇒ SURVEYING

⇒ HYDRAULICS
⇒ Environmental Eng. (2016)
⇒ HIGHWAY | 2017 – 2019

⇒ LAST 3–4 Years EXAMS IMPORTANT Question ⇒
(2020 – 3–4 ⇒ Complete)

⇒ SSC JE PRELIMS – 2020

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Q:) Talus is transported by _____
(BECIL NMRC JE CIVIL 15.09.2019)

Alluvial ← A : Water

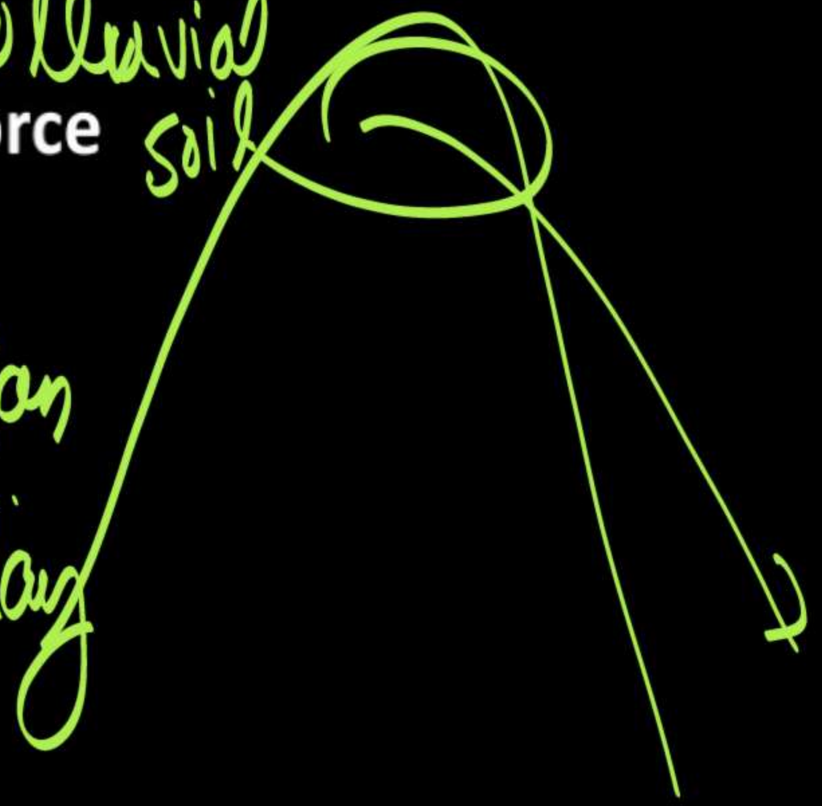
B : Gravitational force — Colluvial soil

C : Glacier

D : Wind — Aeolian soil

→ Marl, Varved clay

(B) Outwash.



Q:) Honeycomb structure is found in _____.
(BECIL NMRC JE CIVIL 15.09.2019)

A : Course sand

B : Fine slit and clay

C : Highly plastic clay

D : Gravels

Q:) Negative pore pressure can develop in _____.
(Civil ESIC JE 2019)

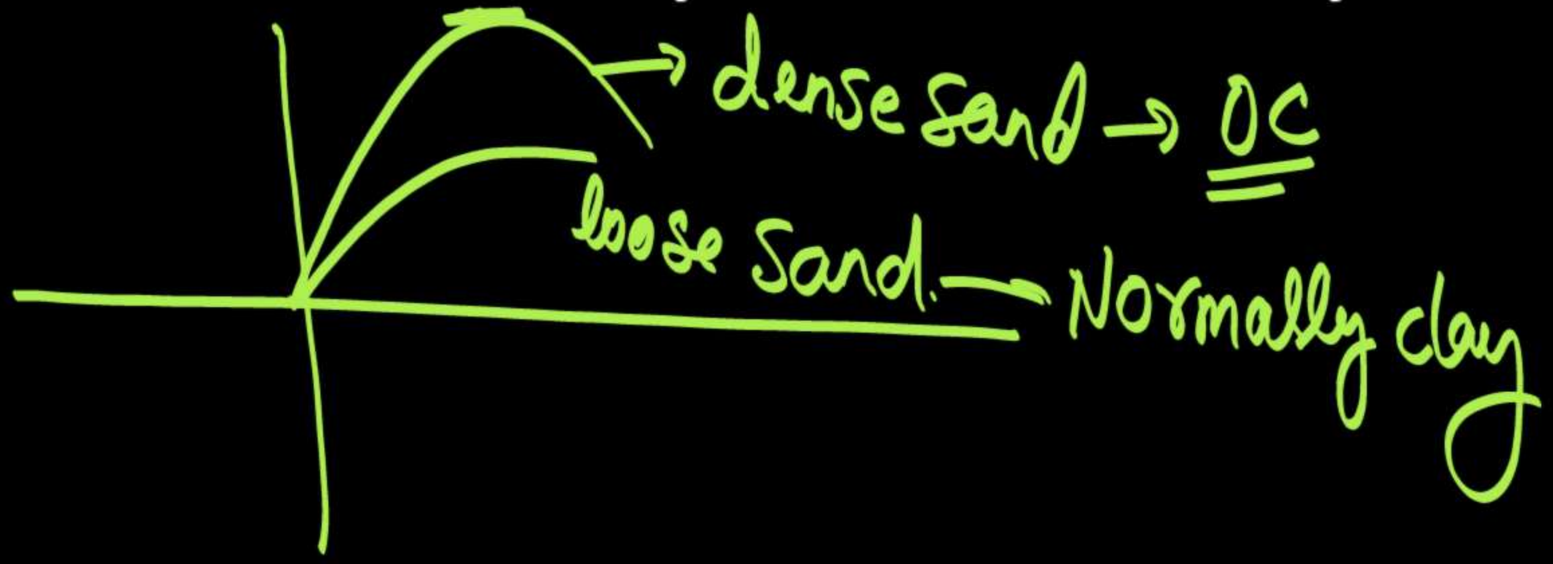
A : Loose sand and over-consolidadated clays

B : Dense sand and over-consolidadated clays

C : Loose sand and normally consolidadated clay

D : dense sand and normally consolidadated clays

B.



Q:) Geologic cycle for the formation of soil, is .....
(SSC JE 2 march 2017 evening shift)
OR
The geological cycle of the formation of the soil is
(HPSSSB JE 03-07-2016)

A : Upheaval → transportation → deposition →weathering
B : Weathering → upheaval → transportation → deposition
C : Transportation → upheaval → weathering → deposition
D : Weathering → transportation → deposition → upheaval

D

Rock

Q:) The collapsible soil is associated with:
(UPRVUNL JE 09-11-2016)

A : Dune sands

B : Literite soil

C : Black cotton soil

D : Loess soil

Laterite Soil.

Volt pressure - constant

Q:) In soil engineering what is the volumetric relationship that defines-porosity?
(SSC JE 23-09-2019 morning)

$n = \frac{V_v}{V}$

A : The ratio of the volume of water to the volume of voids

B : The ratio of the volume of air to the total volume

C : The ratio of the volume of voids to the volume of solids (Void ratio)

D : The ratio of the volume of voids to the total volumne

(D.) soil man.

$\left(e = \frac{n}{1-n}\right)$

$[0 < n < 1]$

Q:) Which one of the following parameters can be used to estimate the angle of friction of a sandy soil-
(RRB JE Shift-III 30.08.2015)

A : Particle size

B : Roughness of particle

C : Density index

D : Particle size distribution

C.

ϕ

$< 30^\circ$

$< 20 \rightarrow$ very loose sand

20-40

40-60

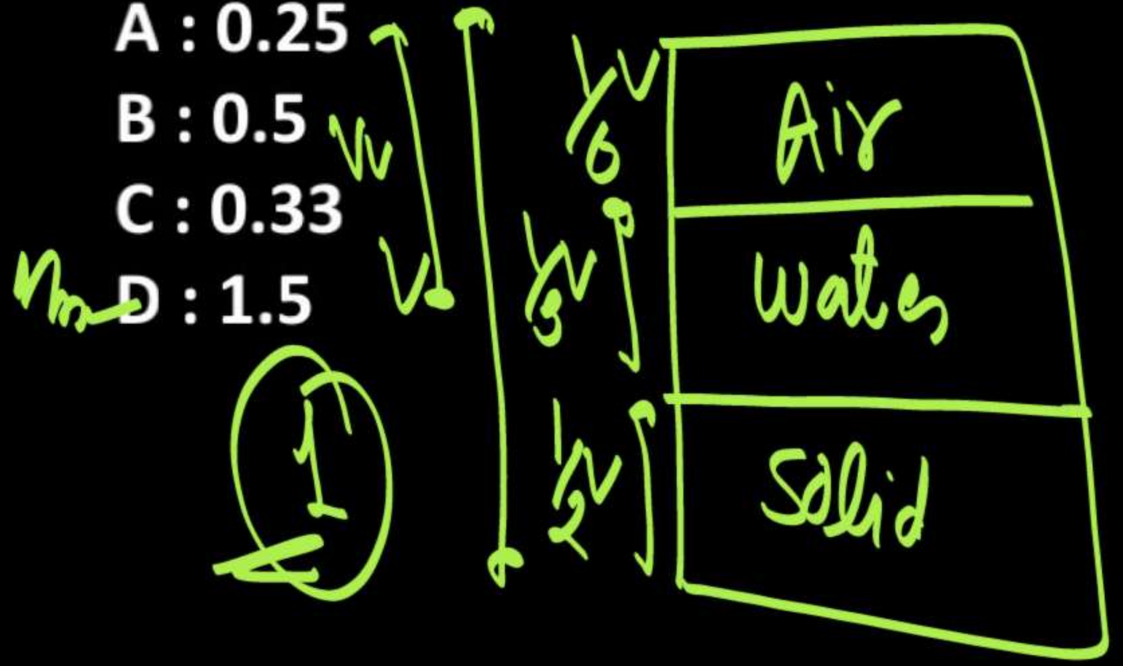
60-80

$> 80 \rightarrow$ dense sand

$> 45^\circ$

Q:) 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:
(L.M.R.C. JE 2015/ESE 1995, 2010)

A : 0.25
B : 0.5
C : 0.33
D : 1.5



$$e = \frac{V_v}{V_s}$$

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:
(RRB SSE Shift-III 01.09.2015)

A : Plasticity

B : Flow ability

C : Porosity

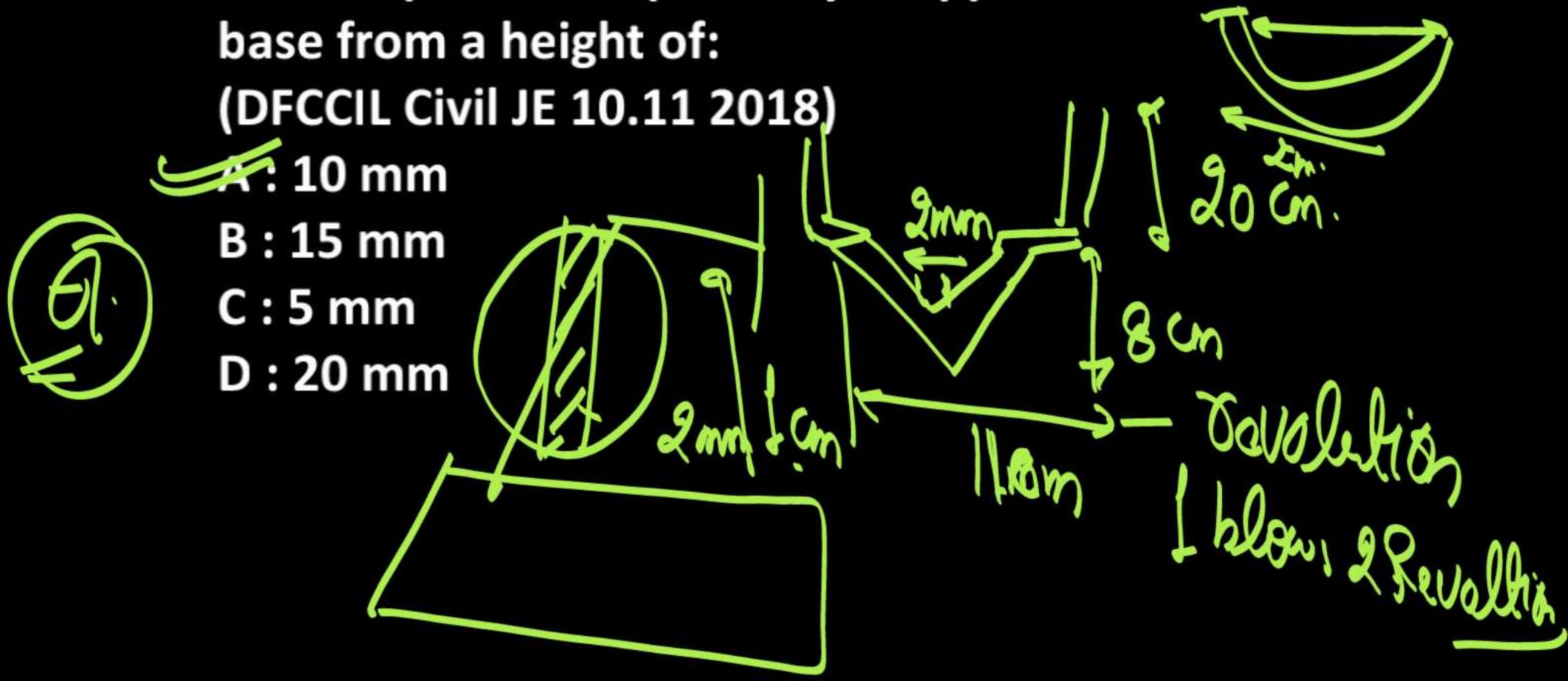
D : Collapsibility

Q:) The diameter of the sieve used for finding liquid limit is.....
(SSC JE 23.09.2019 evening)
A : 376 microns
B : 250 microns
C : 125 microns
D : 425 microns

120gm Sand.
↳ Cassagrande tools
↳ ASTM.

Q:) The liquid limit is determined from casagrade apparatus.The apparatus consists of a semispherical brass cup that is repeatedly dropped onto a hard rubber base from a height of:
(DFCCIL Civil JE 10.11 2018)

A : 10 mm
B : 15 mm
C : 5 mm
D : 20 mm



Q:) The height of free fall of cup while determining liquid limit by using cassagrade's liquid limit device should be-
(SSB Himachal pradesh 18-11-2018/ DFCCIL Civil JE 10.11.2018)

A : 1 cm 10mm

B : 0.5 cm

C : 2 cm

D : 1.5 cm

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. (DMRC 18.04.2018 4.30 pm)

A : 0.965

B : 1.83

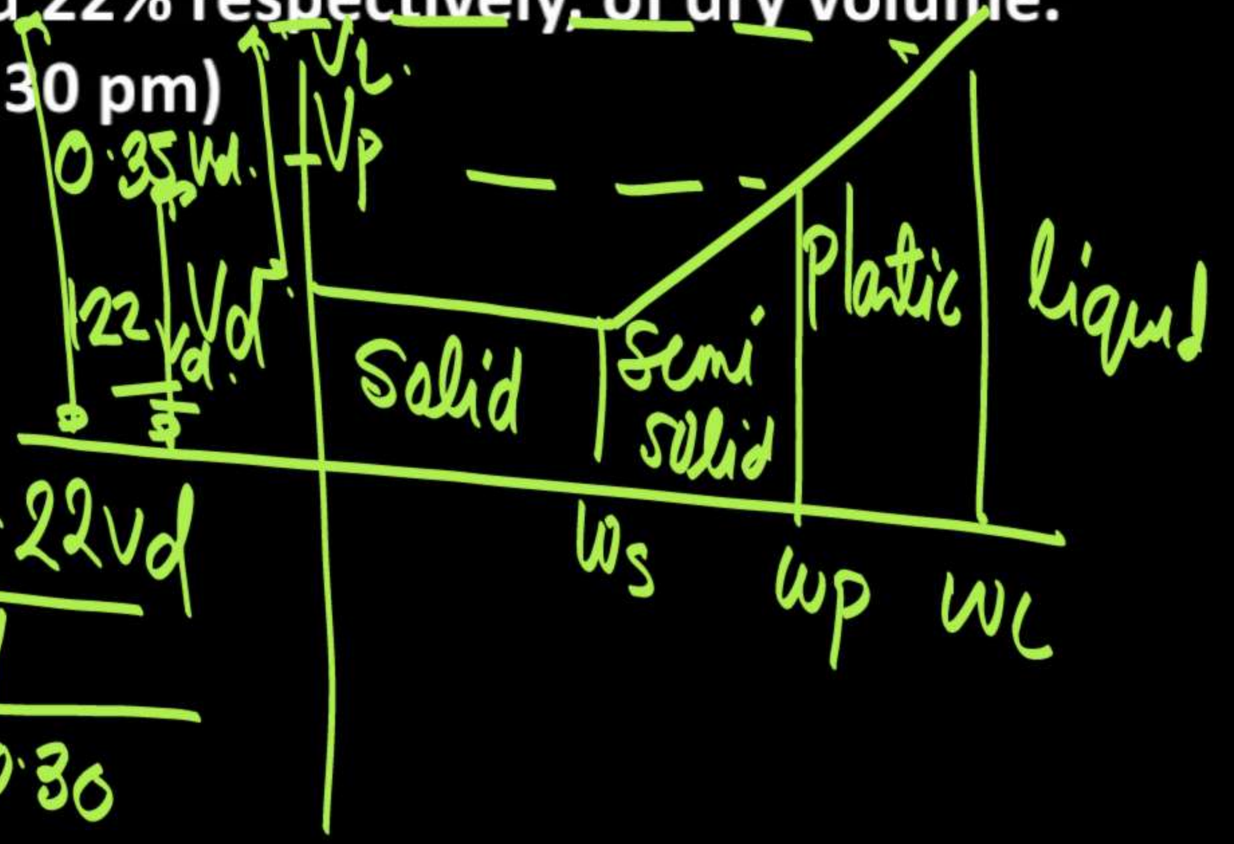
C : 0.74

D : 1.083

$$S.R = \frac{\frac{V_1 - V_2}{V_d}}{w_L - w_p}$$

$$= \frac{1.35V_d - 1.22V_d}{V_d}$$

$$\frac{1.083}{0.42 - 0.30}$$



Q:) Which of the following represents the range of plasticity index for silt?
(SSC JE 29-01-2018 evening shift)

A : 10 to 15

B : 15 to 25

C : 25 to 35

D : 35 to 45

Q:) A soil sample has liquid limit as 45%, plastic limit as 25% and shrinkage limit as 14% for a natural water content of 30%, the liquidity index of the soil will be (UK combined AE Paper-I, 2012)

A : 0.75

B : 0.8

C : 0.25

D : None of the above

C.

$$I_L = \frac{w_N - w_P}{w_L - w_P}$$

$$\frac{30 - 25}{45 - 25} = \frac{5}{20} = \frac{1}{4}$$

$$I_C + I_L = 1$$

Q:) Which one in the following list does not possess plasticity?
(UKPSC AE Paper-I 2007 & 2012)

A : Benotonite

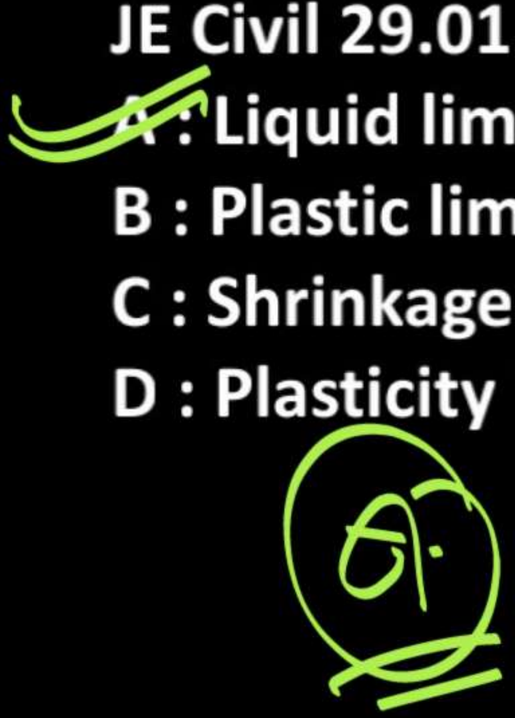
B : Kaolinite

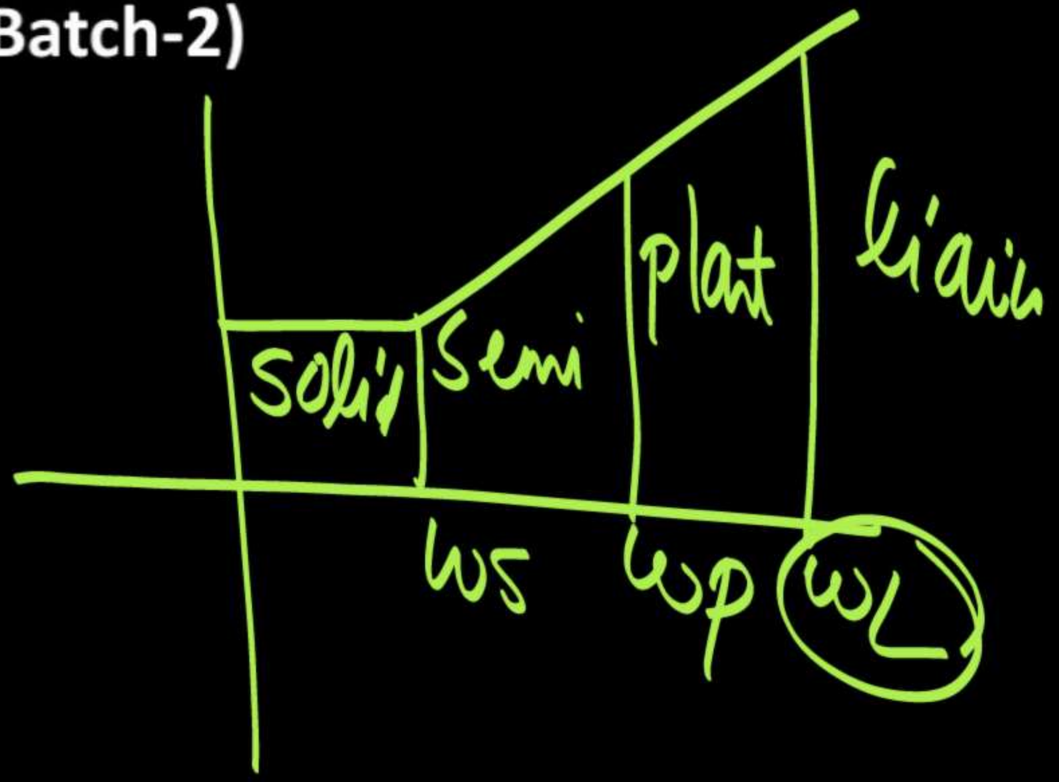
C : Rock flour

D : Fat clay

Q:) The water content of soil which represents the boundary between plastic state and liquid state is known as:
(Rajasthan JE 2015/ ISRO 2015 / UPPCL JE 2013/ BSPHCL JE Civil 29.01.2019 Batch-2)

A : Liquid limit
B : Plastic limit
C : Shrinkage limit
D : Plasticity index





Q:) This is a field method of determining rough value of soil water content:

(M.P. SUB. ENG. morning 4 april 2016)

A : Sand bath method

B : Calcium cabide method – Quicker.

C : Pycnometer method

D : Oven drying method

↳ Best method.

Q:) Swelling potential of a soil is indicated by:
(HPSSSB JE 03-07-2016)

A : Sensitivity of the soil

B : Activity of the soil

C : Permeability of the soil

D : Compressibility of the soil

B.

$\frac{IP}{<2\mu}$ <0.75

$0.75-1.25$.

>1.25

0 (P.I) Va Low swelling

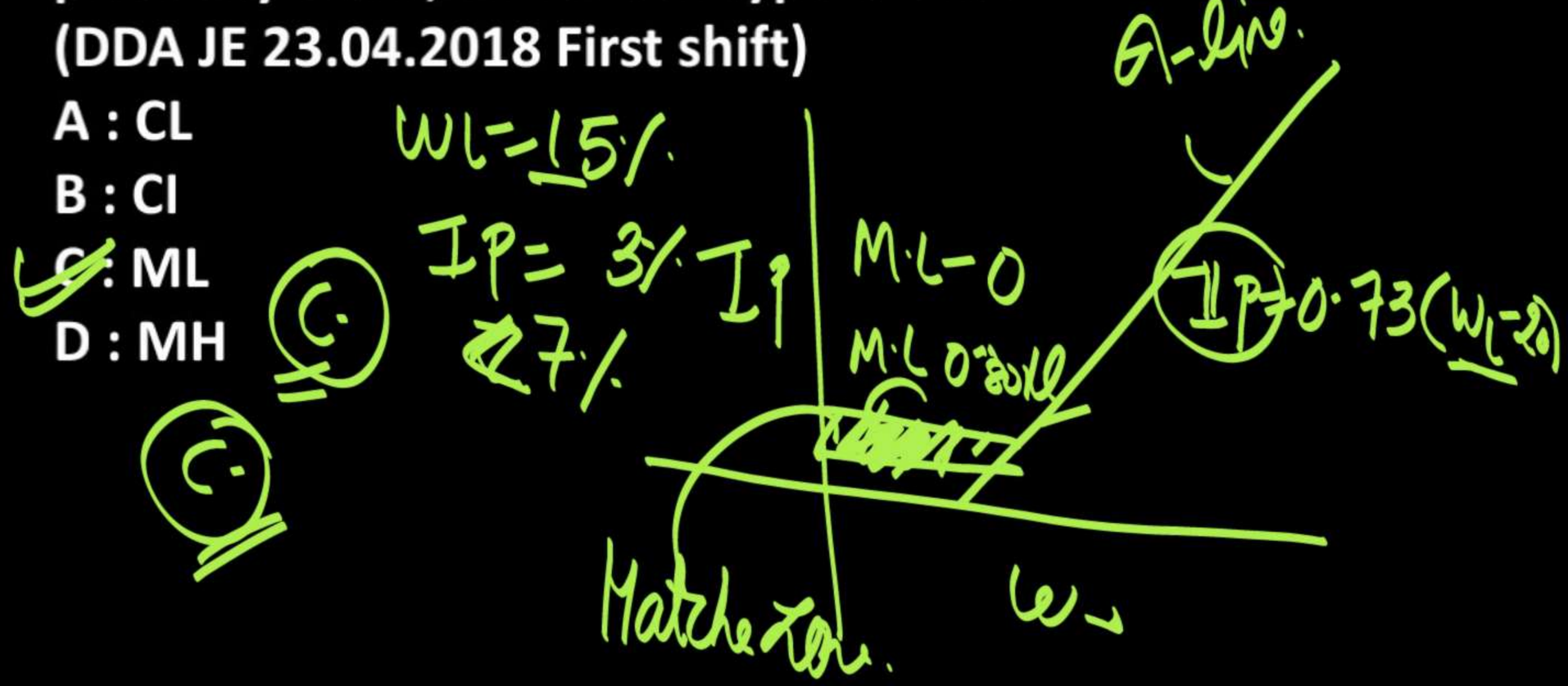
0-15

15-25

25-35 — High swelling

Q:) A soil was tested in a national research center and its liquid limit was found to be 15% and plasticity index was found to be 3%. According to Cassagrande's plasticity chart, which soil type is this?
(DDA JE 23.04.2018 First shift)

A : CL
B : CI
C : ML
D : MH



Q:) The coefficient of uniformity of a soil is 16 and the cofficient of curvature is 1, then what is the ratio D_{60}/D_{30}?

(DDA JE 23.04.2018, 12:30-2:30 pm)

A : 1

~~B~~ : 4 (B.)

C : 3

D : 2.0

$C_u = 16$

$C_c = 1$

$C_u = \frac{D_{60}}{D_{10}} = 16$

$\frac{D_{60}}{16} = D_{10}$

$C_c = \frac{D_{30}^2}{D_{60} \times D_{10}}$

$\frac{D_{60}}{D_{30}}$

$D_{60} \times \frac{D_{60}}{16} = D_{30}^2$

$\frac{D_{60}^2}{D_{30}^2} = 16$

$\frac{D_{60}}{D_{30}} = 4$

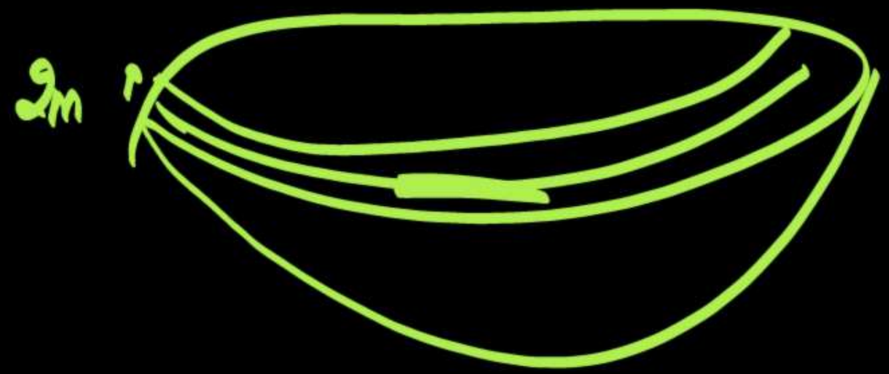
Q:) In liquid limit test, casagrade tool cuts a groove of .... mm wide at bottom.
(DMRC JE 12.04.2018 12:15 pm)

A : 13.7

B : 8

C : 11

D : 12



Q:) The minimum size of grain of silt is about (SSC JE 2015)

A : 0.06 mm

B : 0.2 mm

C : 0.5 mm

D : 1 mm

0.002 mm.

75 μ - 2 μ. silt

< 2 μ - clay

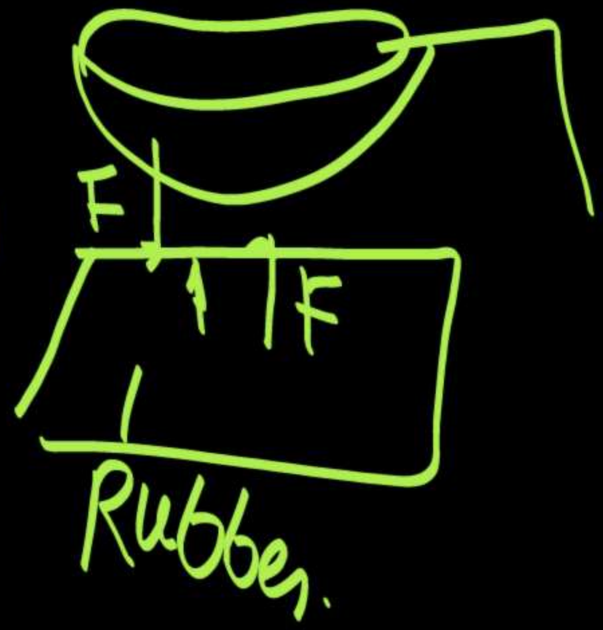
Q:) If the material of a plane of a casagrade, liquid border device is soft in comparison to the standard hard rubber on which a cup filled with clay paste falls, then (LMRC JE 2016)

A : Liquid limit of soil always rise

B : The liquid limit of clay may rise

C : The liquid limit of clay may rise

D : Liquid limit of soil always declines



Q:) A clay in flocculated structure has....
(Civil ESIC JE 2019)

A : Low permeability, low strength and high compressibility

B : High permeability, high strength and low compresibility

C : Low permeability, high strength and low compressibility

D : High permeability, high strength and high compressibility

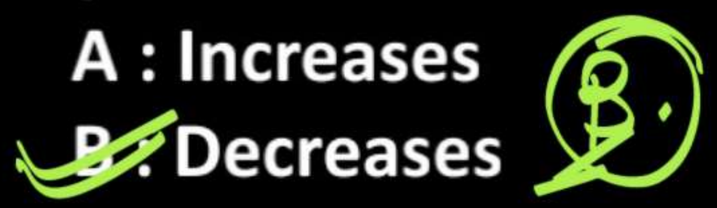
Q:) What will happed to the permeability of soil mass if air is entrapped in its voids?
(LMRC JE 13.05.2018 Shift-I)

A : Increases

B : Decreases

C : Entrapped air does't affect permeability

D : Depends on the viscosity of the fluid



Q:) Keeping the compaction curve in mind.The soil that is in wet part.

(NWDA JE 2019 (12.30 to 2:30 pm)

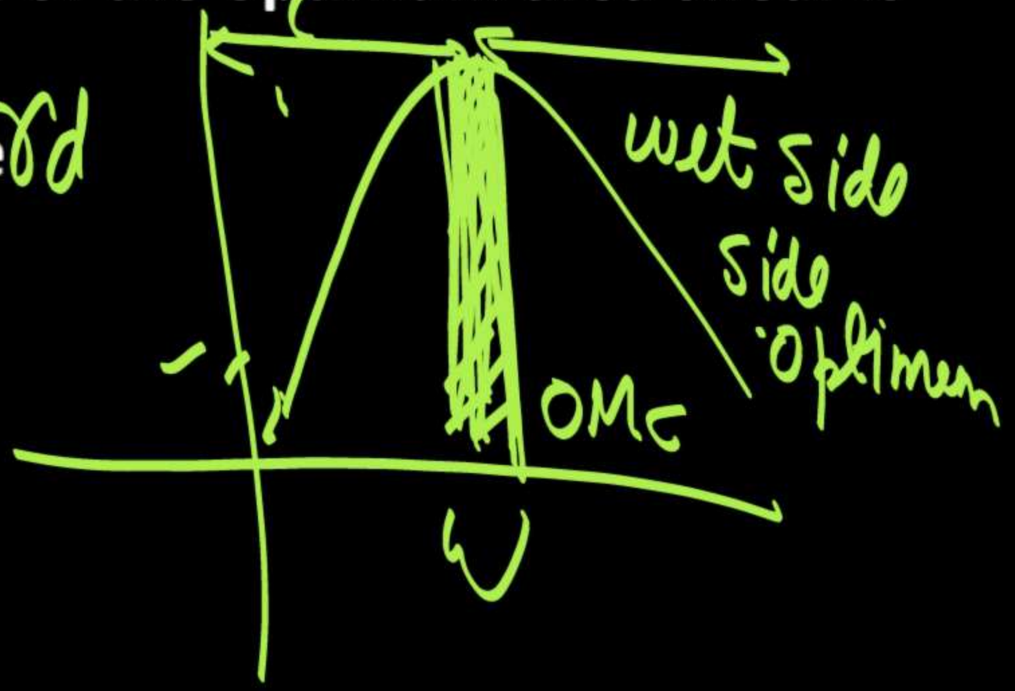
A : Optimum area has higher permeability than the dry part

B : More than the dry part of the optimum area shear is capable

C : Is a dispersed structure

D : Is a puffied structure

(A & C)



Q:) Coefficient of consolidation for clays normally: (L.M.R.C. JE 2015)

A : Decreases with increase in liquid limit

B : Increases with increase in liquid limit

C : First increases and then decreases with increase in liquid limit

D : Remains constant at all liquid limits

$C_v \propto \frac{1}{w.l}$ $C_c = 0.009(w_L - 10$

Q:) The equation $\tau = C + s \tan \varphi\varphi$ is given by (SJNVL JE 07-10-2018 SSC JE 2009)

A : Rankine

B : Coulomb

C : Newton

D : Mohr

B.

$\tau = c + s \tan \phi$

$\tau = f(\sigma)$

$\tau = c + \sigma \tan \phi$

Mohr-Coloumb

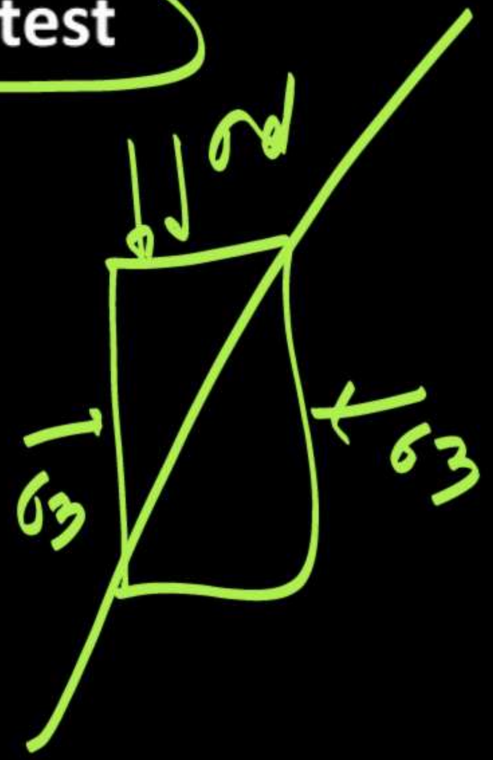
Q:) Which of the following methods is NOT a type of test to determine the shear strength?
(DMRC 18.04.2018 4.30 pm)

A : Three dimensional consolidation test

B : Vane shear test

C : Unconfined compression test

D : Confined compression test



Q:) The graphical method for the determination of earth pressure is:
(M.P. Sub Engg. 4 sep 2018 9.00 am)

A : Rebhann's method

B : Taylor's method → Stability slope, CV.

C : Mohr's diagram method

D : New mark's influence chart method

↳ Vertical stress

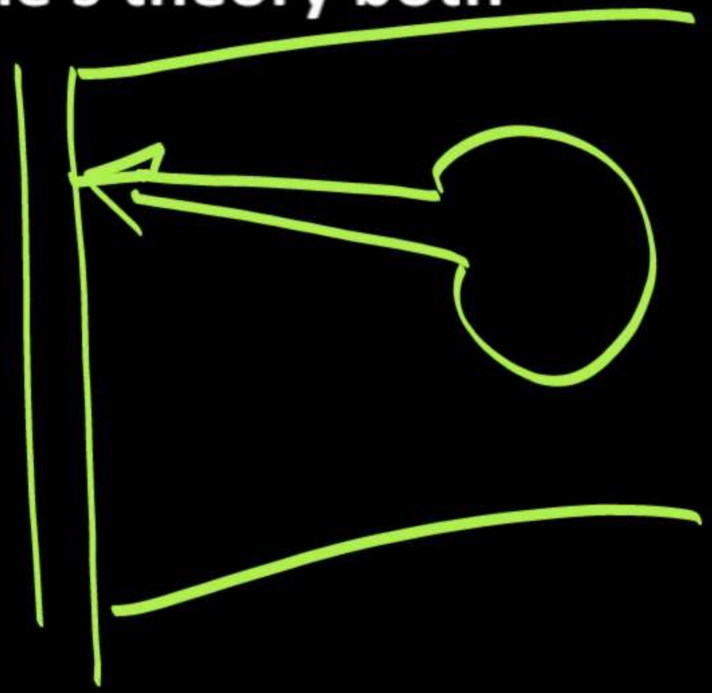
Q:) For bulk heads, which of the following earth pressure theory is applied directly?
(SSC JE 27-10-2018 evening shift)

A : Coubomb's theory

B : Rankine's theory

C : Coubomb's theory and rankine's theory both

D : None of these



Q:) Rise of water table above the ground surface causes (H.P. SSC JE 2015)

A : Equal increase in pore water pressure and total stress

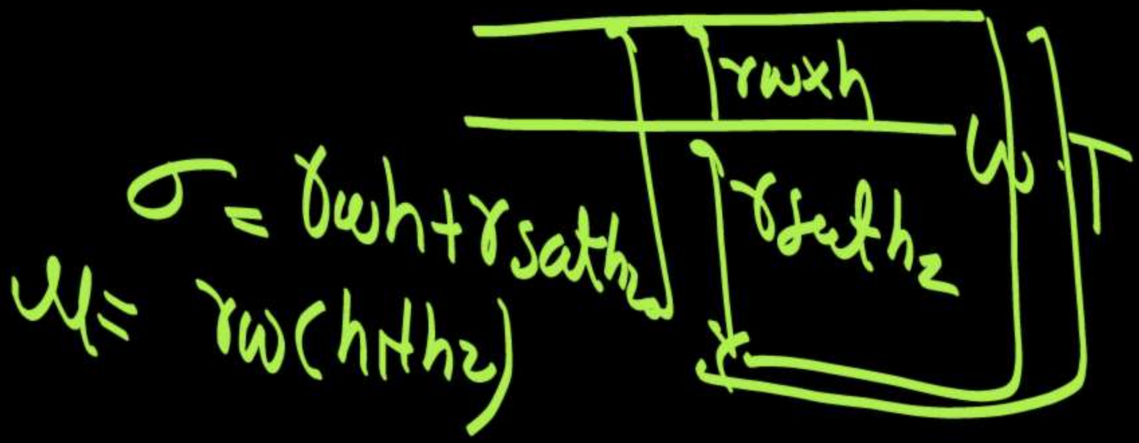
B : Equal decrease in pore water pressure and total stress

C : Increase in pore water pressure but decrease in total stress

D : Decrease in pore water pressure but increase in total stress

$\bar{\sigma} = \gamma_{sat} h_2 - \gamma_w h_2$

$\bar{\sigma} = (\gamma_{sub} h_2)$



Q:) When compared with open caissons, floating caissons generally .....
(SSC JE 23.09.2019 morning)

A : Have a greater depth below the ground surface

B : Have a slow and inconvenient installation

C : Are less expensive

D : Have a higher loads-carrying capacity

Q:) A settlement of footing under immediate elastic settlement, the inflience factor (I_w) for circular shape rigid footing is:
(LMRCL ASST. MANAGER 15.05.2018)

A : 1

B : 0.8

C : 0.9

D : 0.64

B

$S_{immediate\ Rigid} = 0.8 \times S_{immediate\ (elastic)}$

Q:) In a standard penetration test the number of blows required for penetration of ground for 15 cm, 30 cm 45 cm and 60 cm from ground level are 2, 4, 7 and 9. Then the observed SPT value is:
(UPRVUNL JE 2019)

A : 22

B : 11

C : 6

D : 9

SPT = (300mm)

15cm - 30cm

30cm - 45cm.

SPT = 4 + 7

= 11

B.

Q:) The type of bearing capacity failure at shallow depth in very dense sand is called:
(LMRC JE 13.05.2018 shift-I)

A : Punching failure

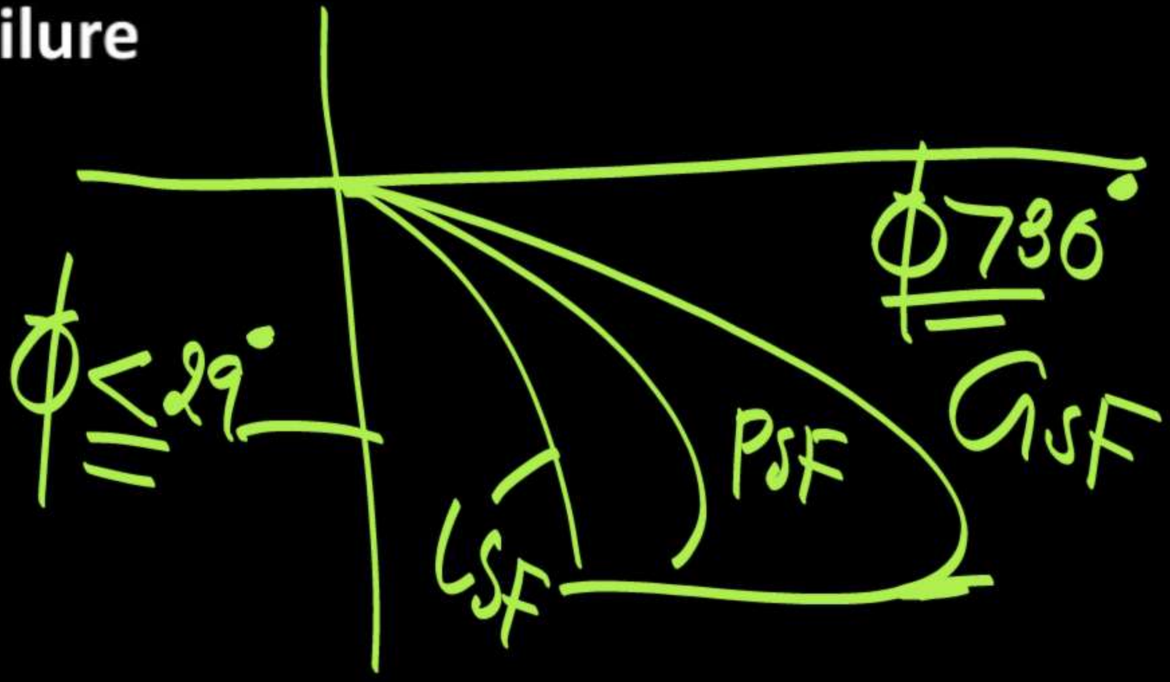
B : Local shear failure

C : Combined local and shear failure

D : General shear failure

General shear failure

D.



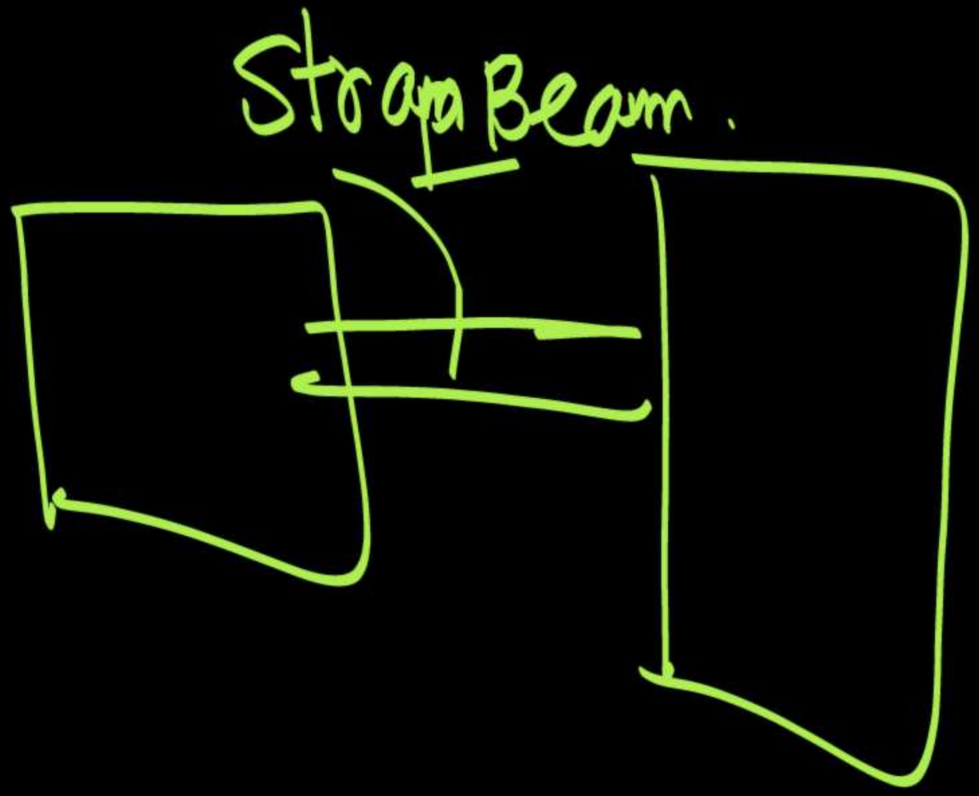
Q:) The foundation in which a cantilever beam is provided to join two footing is known as.....
(M.P. Sub Engg. Draftman 1 sep 2018 9.00 am)

A : Combined footing

B : Raft footing

C : Strip footing

D : Strap footing



Q:) The maximum intensity of loading that the foundation will safety carry without the risk of shear failure of soil irrespective of any settlement that may occur is called as:
(DDA JE 23.04.2018 first shift)

A : Allwable bearing capacity

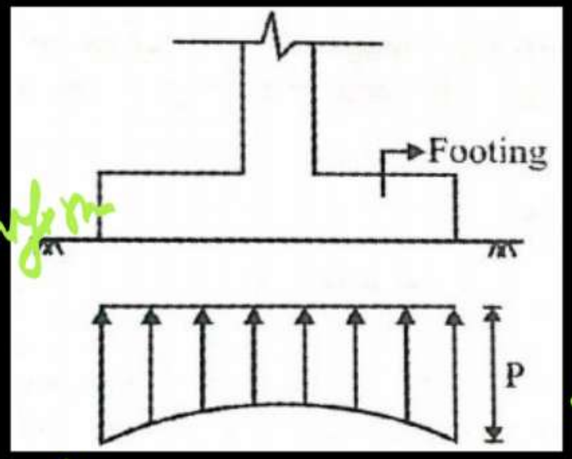
B : Ultimate bearing capacity

C : Safe bearing capacity

D : Net loading capacity

$q_s = \frac{q_{nu}}{FOS} + \gamma_{soil} D_f$

Q:) The figure given below represents the contact pressure distribution on underneath as (UK Combined AE paper-I, 2012)



A : Rigid footing on saturated soil

B : Rigid footing on sand

C : Flexible footing on saturated clay

D : Flexible footing on sand

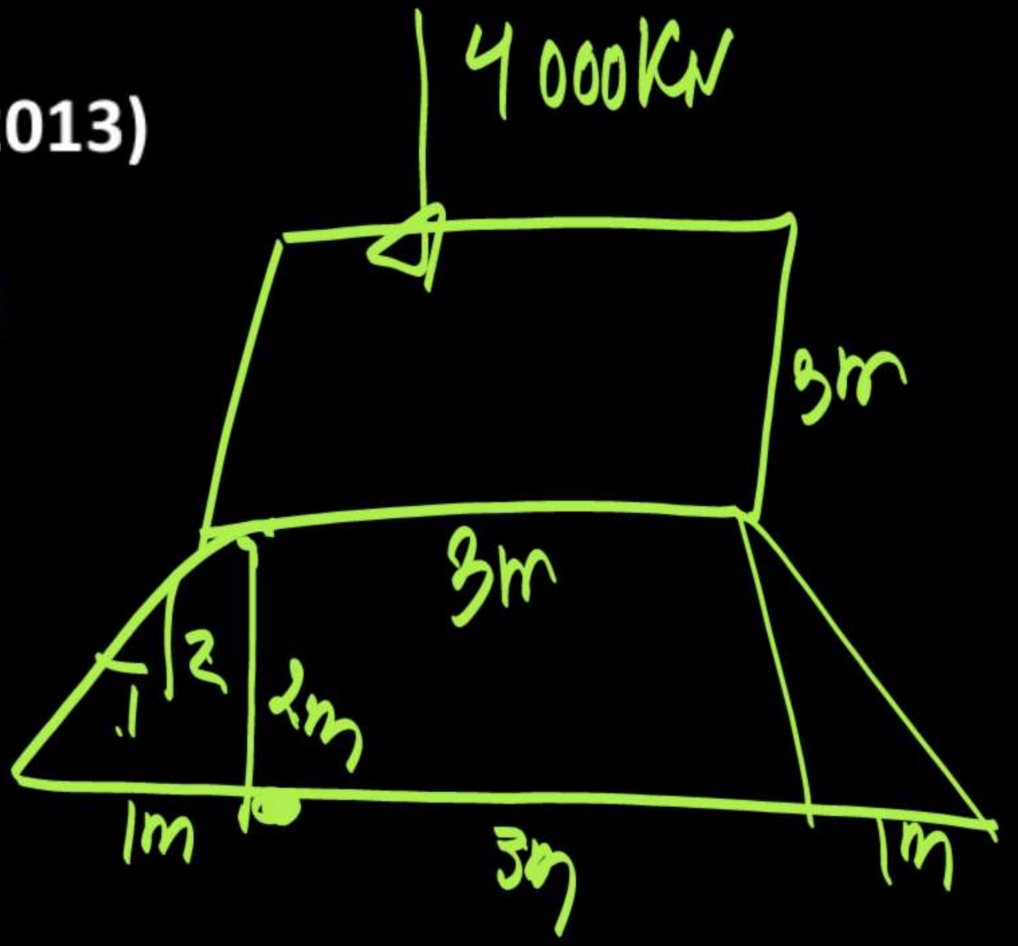
Q:) A load of 4000 kN is uniformly distributed over an area of 3 m × 3 m. Average vertical stress at a depth of 2 m below will be (assuming 2 vertical : 1 horizontal distribution)-
(UTTRAKHAND AE 2013)

A : 250 kN/m²
B : 160 kN/m²
C : 200 kN/m²
D : 220 kN/m²

$\sigma_z = \frac{4000}{5 \times 5}$

B.

160 kN/m²



Q:) The contact pressure on uniformly loaded circular footing resting on clay, at the centre is:
(UPPCL JE 2015)

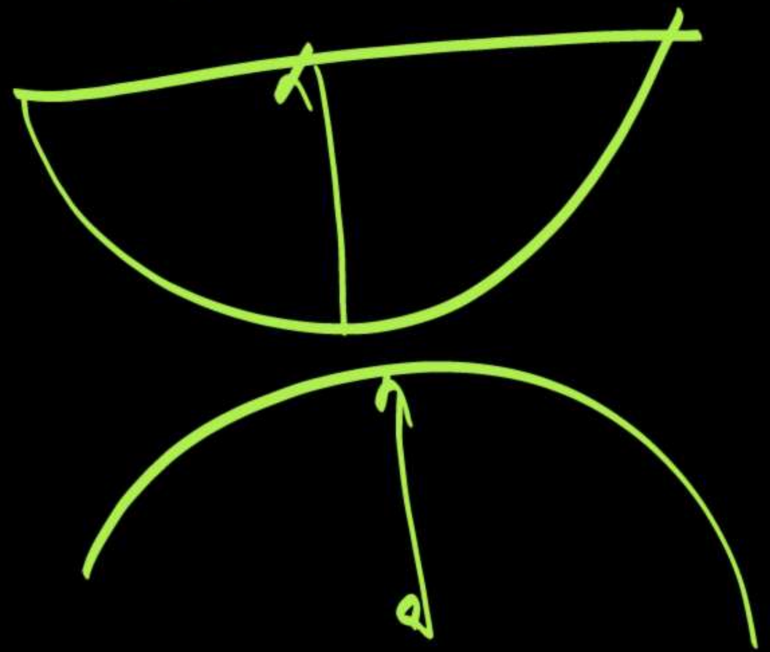
Flexible footing

A : Sinusoidal

B : Equal

C : Maximum

D : Minimum



Q:) The minimum settlement that is to be observed for ending teh plate load test is-
(AIRPORT AUTHORITY OF INDIA JE 2015)

A : 10 mm
B : 15 mm
C : 20 mm
D : 25 mm

D.

Plate → Settlement
Bearing pressure

30 cm → 90 cm

Plate width

5x plate width

Q:) Static cone penetration test is usually conducted when the structure is likely to be founded on: (ESIC JE 2016)

A : Shallow foundations

B : Pile foundations

C : Drier foundation

D : Improved ground

B.

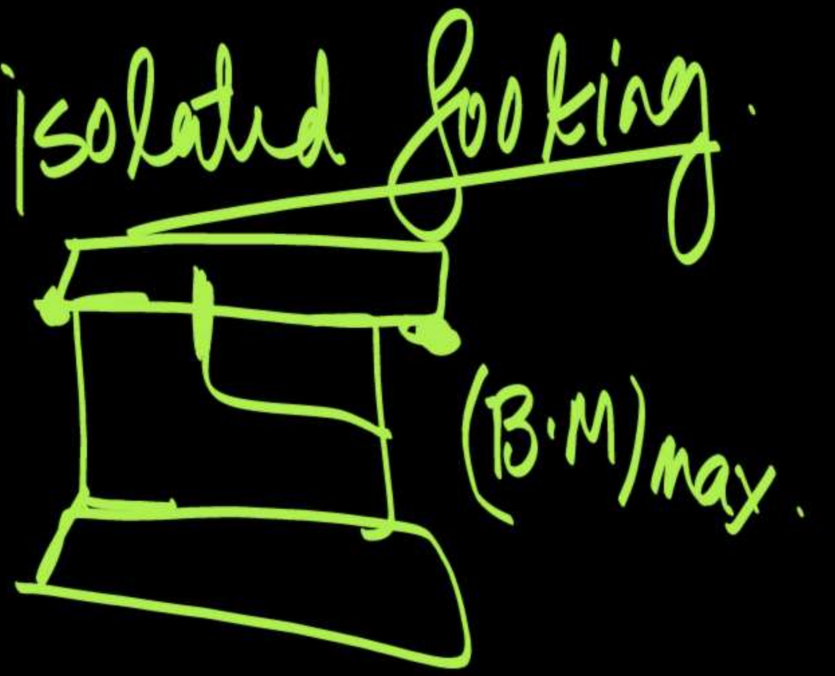
Skin friction

Point resistance

Q:) In a grillage footing, the maximum shear force occurs at the
(IOF JE 2015)

A : Edge of grillage beam
B : Centre of base plate
C : Centre of grillage beam
D : Both A and B

D.



Q:) The _____ method of exploration was developed in connection with prospecting useful minerals and oils. (M.P. Sub Engg. 4 sep 2018 9.00 am)

A : Geo physical

B : Rotary boring

C : Sub surface sounding

D : Pereussion boring

Shallow depth

remould नहीं चाहते

depth

Q:) The largest value of stability number (LMRC JE 2016)

A : 1

B : 0.261

C : 2

D : 0.5

Q:) Standard penetration resistance in very stiff clays lies between:
(SSC JE 2010)

A : 2 to 4

B : 4 to 8

C : 8 to 15

D : 15 to 30

15-30

>30

stiff.

Q:) Mechanical stabilization of soil be achieved by which process?
(UPRVUNL JE 09.11.2016)

A : Lime stabilization — Ip ↓ wp ↑ WL ↓

B : Cement stabilization → Gravelly road. (OM)

C : Proper grading

D : Bitumen stabiilization

A B, C → chemical stabilization

→ Water proofing

Q:) The most suitable soil for compressed air tunneling is
(H.P. SSC JE 2015/Hariyana SSC JE 2015)

A : Silt

B : Sand

C : Clay

D : gravel

C (Home-work)

THANK YOU
FOR YOUR SUPPORT
JAI HIND
JAI
BHARAT