SSC JE 2022 15 NOVEMBER

CIVIL ENGINEERING

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$C = \frac{1}{n} R^{\frac{1}{6}}$

Chezy's eqn

$V = C\sqrt{RS}$

Manning's eq

$V = \frac{1}{n} R^{2/3} S^{1/2}$

$C = \frac{1}{n} R^{1/6}$

1. Chezy's coefficient (C) is related to Manning's roughness coefficient (n) as__.

(a) $C = \frac{1}{n} R^{1/6}$

(b) $C = \frac{1}{n} R^{5/6}$

(c) $C = \frac{1}{n} R^{2/3}$

(d) $C = \frac{1}{n} R^{1/3}$

30 Quest+

100 Quest+

Good

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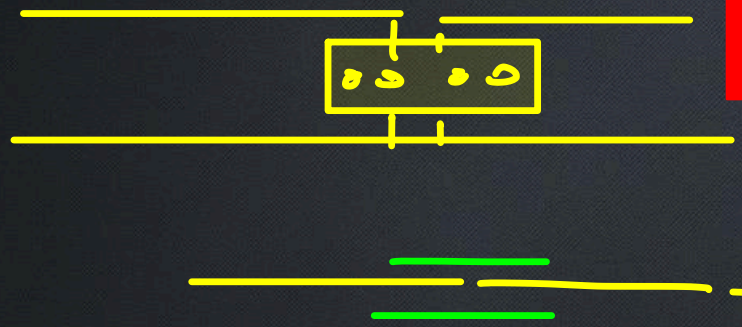

2. For a BG track with M+5 sleeper density, find the number of fish plates required for 1 km of track.

(a) 77
(b) 154
(c) 200
(d) 308

1000m

M+5
= 13+5
= 18

1000 / 13
= 76.92
= 77

= 77 x 2
= 154

Total = 154 x 2
= 308

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3. Which level has internal compensator mechanism to automatically adjust the line of sight?

(a) Auto-level
(b) Tilting level
(c) Abney level
(d) Wye-level

optical device

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4. Chemical compounds such as Dichloro-diphenyl trichloro-ethane (DDT) are applied on wood for the prevention of:

(a) wet rot
(b) discoloration
(c) insects
(d) foxiness

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5. Which of the following is NOT a function of GPS?

(a) Measuring precise time

(b) Measurement of earthwork

(c) Moving from one location to another

(d) Monitoring of any object or personal movement

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6. Which of the following is NOT a method for estimating deflections in beams?

(a) By integration of bending moment equation

(b) By integration of shear force and load equation

(c) Mohr's circle method

(d) Moment area method

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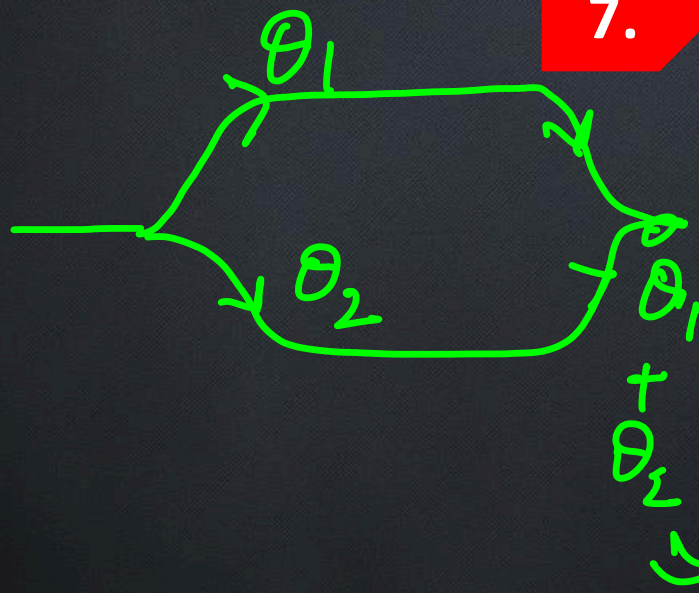

7. A combination of two or more pipes connected between two points so that the discharge divides at the first junction and re-joins at the next is known as__.

(a) pipes in parallel
(b) pipes in series
(c) pipes in horizontal
(d) pipes in vertical

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

8. In granular materials, the resistance to sliding on any plane within the soil mass depends upon the__

(a) normal force and angle of internal friction

(b) tangential force and angle of sliding friction

(c) tangential force only

(d) normal force only

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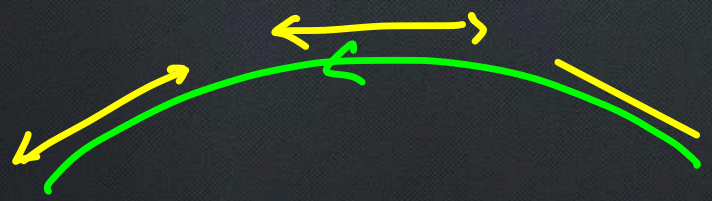

9. The meridians that are parallel to the directions taken by freely moving magnetized needles, as in a compass are called as:

(a) geodetic meridians
(b) magnetic meridians
(c) dynamic meridians
(d) grid meridians

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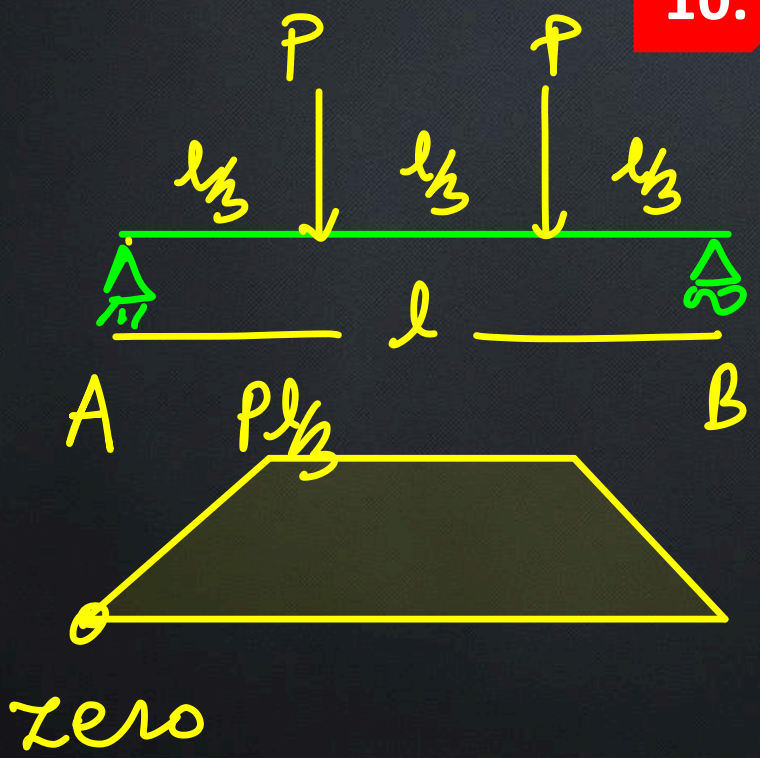

10. A simply supported beam of length L is associated with two point loads, each of magnitude P, acting at one third of span from either end as per the following diagram. Calculate the magnitude of bending moment acting at the left end

(a) $\frac{P.L}{3}$ (b) $\frac{2P.L}{3}$

(c) P.L (d) Zero

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11. Which of the following oxides is present in highest proportion in Ordinary Portland cement?

(a) NaO
(b) MgO
(c) CaO
(d) SiO_2

lime ≃ 65%
CaO

silica → 17-25%.

Alumina → 3-8%.

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12. Which the following is NOT an assumption of Rankine Theory?

(a) Vertical boundary formed by the vertical back of a smooth wall surface.

(b) Soil is homogenous and dry.

(c) Soil is cohesive.

(d) Semi-infinite mass of soil bound by a horizontal surface.

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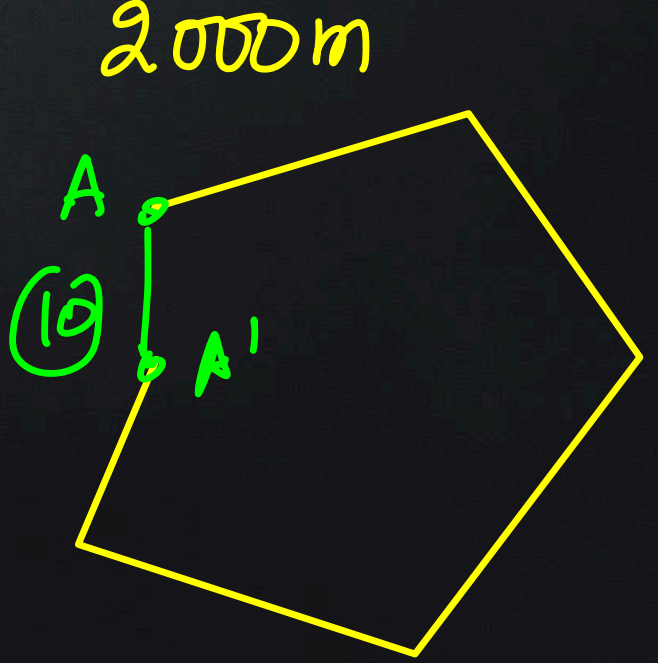
13. If the perimeter of traverse is 2000 m and the amount of closing error is 10 m, then the relative closing would be:

(a) 0.005
(b) 5
(c) 0.05
(d) 0.5

$= \frac{10\ m}{2000}$

$= 0.005$



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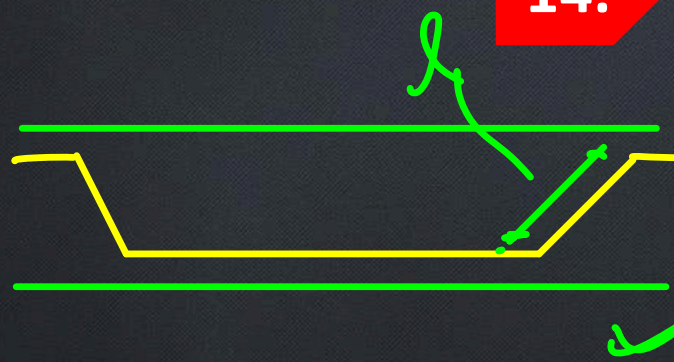

14. For 45-degree cranked or bend up bar, the inclined length of crank is equal to:

(a) 0.42 d
(b) d
(c) 2d
(d) d/2

30° – 0.27d
45° – 0.42d
60° – 0.57d
90° – 0.89d

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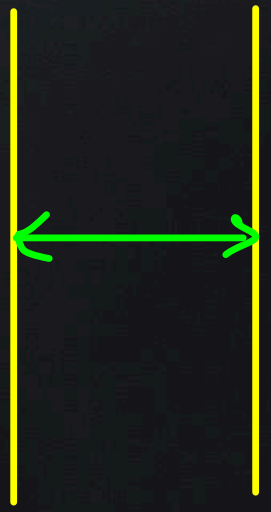
BG → 1.676m
MG → 1m
NG → 0.762m
LG → 0.610m
SG → 1.435m

15. **The clear minimum perpendicular distance between the inner faces of two rails is called as:**

(a) cross-slope
(b) super elevation
(c) camber
(d) rail gauge



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16. In oven drying method, the soil sample is kept in the oven for about_hours.

(a) 48
(b) 24
(c) 36
(d) 12

Oven
Inorganic
105°-110°
organic → 60°
gypsum → 80°

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17. Defective outlet and head regulator along with inadequate slope and not-regime section result' the channel.

(a) silting
(b) alignment
(c) scouring
(d) sedimenting

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$Q = \frac{124A}{\sqrt{A + 10.4}}$

$\simeq 123\sqrt{A}$

Dicken's → North

$Q = C_D A^{3/4}$

Ryve's $Q = C_R A^{\frac{2}{3}}$

↳ South

18. **Inglis formula for the calculation of peak drainage discharge is applicable to:**

(a) circular shaped catchments in old Bombay State

(b) circular shaped catchments in Hyderabad Deccan regions

(c) fan shaped catchments in old Bombay State

(d) fan shaped catchments in Hyderabad Deccan regions

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19. On which of the following factors does the duty of irrigation water NOT depend?

(a) Cultivation practices
(b) Population of the locality
(c) Type of soil
(d) Type of crop

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20. For an isotropic homogeneous body, the ratio of lateral strain to axial strain is called as:

(a) modulus of elasticity
(b) plasticity index
(c) Poisson's ratio
(d) yield value

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21. According to IS 456, the anchorage value of a standard U-type hook shall be equal to X times the diameter of the bar, where X is:

(a) 12
(b) 20
(c) 16
(d) 8

45° - 4ϕ

180°

16ϕ

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22. X is the measure and adjustment of price levels for goods and services across a broad sector of the economy, where X is:

(a) reversal
(b) indexation
(c) dilution
(d) reciprocation

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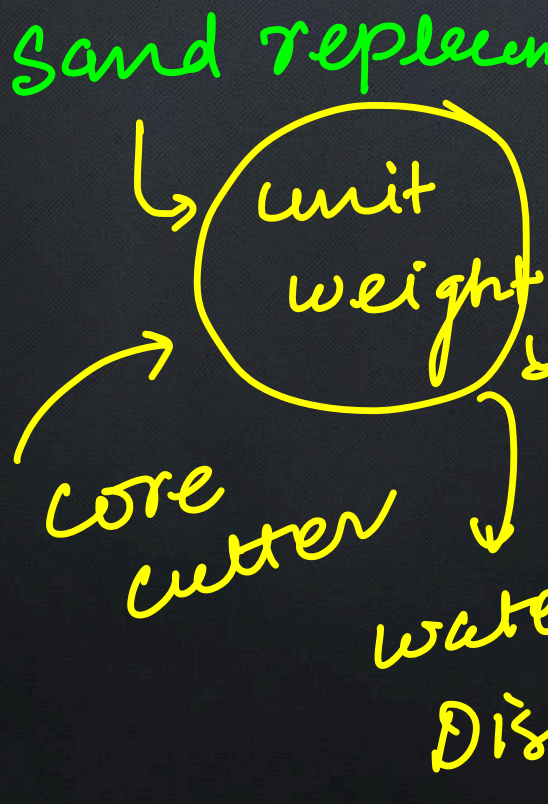
23. The specific gravity of soil solids is determined by:

(a) oven drying method → water

(b) sand bath method → water

(c) pycnometer method

(d) sieve analysis



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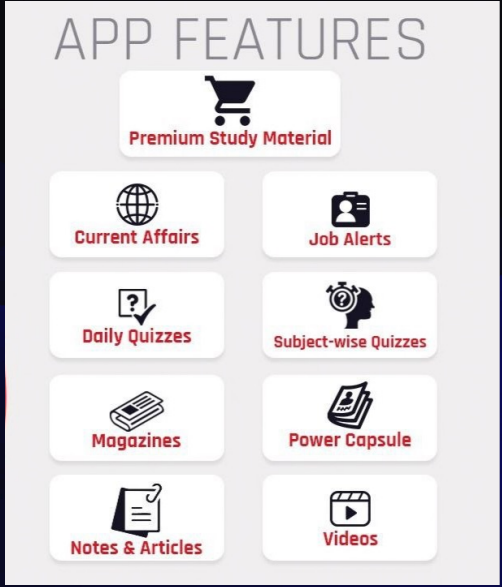

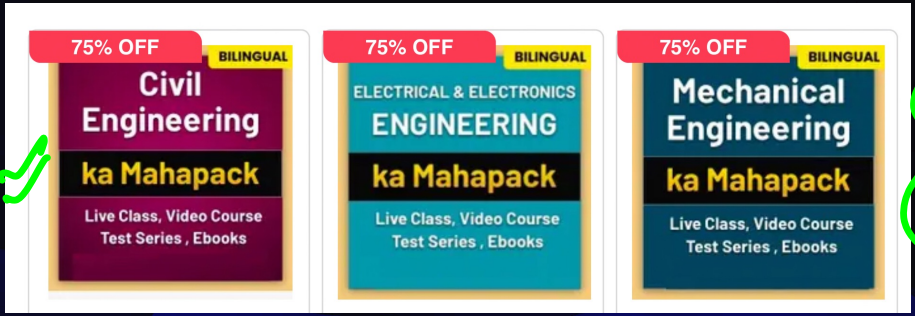

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6+6

12+12

Discount- Y293