TS PGECET QUESTION PAPER

2023



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1.Options shown in green color and with ✔ icon are correct.

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Question Paper Name :	Civil Engineering 29th May 2023 Shift2
Subject Name :	Civil Engineering
Creation Date :	2023-05-29 18:29:07
Duration :	120
Total Marks :	120
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
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Auto Save on Console?	Yes
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Show Reports :	No
Show Progress Bar :	No

Civil Engineering

Group Number :	1
Group Id :	28393659
Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	120
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics

Section Id :	283936168
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	10
Section Marks :	10
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1

Sub-Section Id : 283936168

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 1 Question Id : 2839368441 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The system of equations $\begin{bmatrix} 1 & 2 & 4 \\ 2 & 1 & 2 \\ 1 & 2 & a-4 \end{bmatrix}\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 6 \\ 4 \\ a \end{bmatrix}$ will have unique solution for

Options :

1. ✖ $a = 8$

2. ✔ $a \neq 8$

3. ✖ $a \in R$

4. ✖ $a \in Z$

Question Number : 2 Question Id : 2839368442 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$ satisfies the matrix equation $A^3 - 3A^2 + KA - 5I = 0$ then $K =$

Options :

1. ✖ -8

2. ✖ 8

3. ✔ -9

4. ✖ 9

Question Number : 3 Question Id : 2839368443 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of $\int_0^1 \frac{35x^3}{32\sqrt{1-x}}dx =$

Options :

1. ✔ 1

2. ✖ 3

3. ✖ $\frac{35}{32}$

4. ✖ $\frac{32}{35}$

Question Number : 4 Question Id : 2839368444 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The greatest value of the directional derivative of the function $f = \frac{x^3}{3} + y + z^2$ at (-1, 1, 1) is

Options :

1. ✖ $\sqrt{3}$

2. ✖ $\sqrt{5}$

3. ✖ $\sqrt{7}$

4. ✔ $\sqrt{6}$

Question Number : 5 Question Id : 2839368445 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If a random variable has a Poisson distribution such that $P(X = 1) = P(X = 2)$, then $P(X = 4)$ is

Options :

1. ✖ $\frac{1}{4}e^{-2}$

2. ✖ $\frac{1}{3}e^{-2}$

3. ✔ $\frac{2}{3}e^{-2}$

4. ✖ e^{-2}

Question Number : 6 Question Id : 2839368446 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the density function of continuous random variable X is given by $f(X=x)=\begin{cases}\frac{1}{\beta}e^{-\left(\frac{x}{\beta}\right)}, & x>0\\ 0, & \text{otherwise}\end{cases}$

then the mean of the distribution is

Options :

1. ✖ $\frac{1}{\beta}$

2. ✔ β

3. ✖ β^2

4. ✖ β^3

Question Number : 7 Question Id : 2839368447 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $D^n=\frac{d^n}{dx^n}$ then $\frac{1}{D^2+9}\sin 3x=$

Options :

1. ✔ $\frac{-x}{6}\cos 3x$

2. ✖ $\frac{x}{6}\cos 3x$

3. ✖ $\frac{-x}{6}\sin 3x$

4. ✖ $\frac{x}{6}\sin 3x$

Question Number : 8 Question Id : 2839368448 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Laplace transform of $\{te^{2t}\sin 3t\}$ is

Options :

1. ✖ $\frac{s-2}{(s^2-4s+13)}$

2. ✖ $\frac{s-2}{(s^2-4s+13)^2}$

3. ✖ $\frac{6(s+2)}{(s^2-4s+13)^2}$

4. ✔ $\frac{6(s-2)}{(s^2-4s+13)^2}$

Question Number : 9 Question Id : 2839368449 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $\frac{dy}{dx} = x + y^2, y(0) = 1$ then by Picard's method the second approximation $y^{(2)}(x) =$

Options :

1. ✖ $1 + x + \frac{3}{2}x^2$

2. ✖ $1 + x + \frac{3}{2}x^2 + \frac{2}{3}x^3$

3. ✔ $1 + x + \frac{3}{2}x^2 + \frac{2}{3}x^3 + \frac{x^4}{4} + \frac{x^5}{20}$

4. ✖ $1 + x + \frac{3}{2}x^2 + \frac{2}{3}x^3 + \frac{x^4}{4} + \frac{x^5}{20} + \frac{x^6}{120}$

Question Number : 10 Question Id : 2839368450 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Newton-Raphson iteration formula for finding $\sqrt[3]{20}$ is

Options :

1. ✖ $x_{n+1} = \frac{2x_n^3 - 20}{3x_n^3}$

2. ✖

$$x_{n+1} = \frac{2x_n^3 + 20}{x_n^3}$$

3. ✖ $$x_{n+1} = \frac{x_n^3 + 20}{3x_n^3}$$

4. ✔ $$x_{n+1} = \frac{2x_n^3 + 20}{3x_n^3}$$

Civil Engineering

Section Id :	283936169
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	110
Number of Questions to be attempted :	110
Section Marks :	110
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	283936169
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 11 Question Id : 2839368451 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The "Plane section remain plane" assumption in bending theory implies

Options :

1. ✔ Strain profile is linear

2. ✖ Stress profile is linear

3. ✖ Both stress and strain profiles are linear

4. ✖ Shear deformation is neglected

Question Number : 12 Question Id : 2839368452 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A cantilever beam of 3m long, carries a uniformly distributed load over the entire length. If the slope at the free end is 1°, the deflection at the free end is

Options :

1. ✖ 49.27 mm

2. ✔ 39.27 mm

3. ✖ 30.27 mm

4. ✖ 20.27 mm

Question Number : 13 Question Id : 2839368453 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A metal bar of length 100 mm is inserted between two rigid supports and its temperature is increased by 10°C. If the coefficient of thermal expansion is $12x10^{-6}$ per °C and the Young's modulus is $2x10^{5}$ MPa, the stress in the bar is

Options :

1. ✗ 0

2. ✗ 12 MPa

3. ✓ 24 MPa

4. ✗ 2400 MPa

Question Number : 14 Question Id : 2839368454 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the Principal stresses in a two-dimensional case are -10 MPa and 20 MPa respectively, then maximum shear stress at the point is

Options :

1. ✗ 10 MPa

2. ✓ 15 MPa

3. ✗ 20 MPa

4. ✖ 30 MPa

Question Number : 15 Question Id : 2839368455 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An RCC column of 4 m length is rigidly connected to the slab and to the foundation.

Its cross-section is 400 × 400 mm. The column will behave as a/an

Options :

1. ✖ Linkage

2. ✖ Long column

3. ✖ Intermediate column

4. ✔ Short column

Question Number : 16 Question Id : 2839368456 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The unit load method used in structural analysis is

Options :

1. ✖ An extension of Maxwell's reciprocal theorem

2. ✖ Applicable only to statically indeterminate structures

3. ✔ Derived from Castigliano's theorem

4. ✖ Another name for stiffness method

Question Number : 17 Question Id : 2839368457 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The moment required to rotate the near end of a prismatic beam through a unit angle without translation when the far end is fixed, is

Options :

1. ✖ $\frac{EI}{L}$

2. ✖ $\frac{2EI}{L}$

3. ✖ $\frac{3EI}{L}$

4. ✔ $\frac{4EI}{L}$

Question Number : 18 Question Id : 2839368458 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For a portal frame ABCD with side sway, if the displacement factor in the member BA is $\frac{-3}{4}$ then the displacement factor in the member CD is

Options :

1. ✔ $\frac{-3}{4}$

2. ✖ $\frac{-4}{3}$

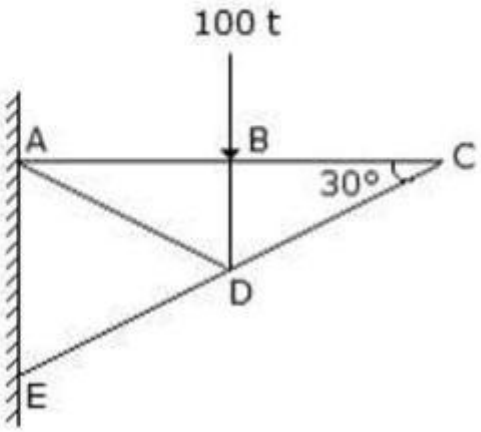
3. ✖ $\frac{-1}{2}$

4. ✖ $\frac{3}{4}$

Question Number : 19 Question Id : 2839368459 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the truss shown in the figure, the force in member BC is



Options :

1. ✖ 100 t Compressive

2. ✖ 100 t Tensile

3. ✔ zero

4. ✖ Indeterminate

Question Number : 20 Question Id : 2839368460 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In which one of the following cases is the Muller-Breslau principle applicable to get influence line?

Options :

1. ✖ Reaction at the ends of a simple beam

2. ✖ Bending moment at a section

3. ✖ Shear force at a section

4. ✔ Forces and moments at any section

Question Number : 21 Question Id : 2839368461 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Sand that is recommended for R.C.C work should have fineness modulus

Options :

1. ✖ 0 to 2

2. ✔ 2 to 3.5

3. ✖ 3 to 4.5

4. ✖ 4 to 5

Question Number : 22 Question Id : 2839368462 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

As per I.S classification, the minimum compressive strength of a first-class brick should be

Options :

1. ✖ $150\ kg/cm^2$

2. ✖ $125\ kg/cm^2$

3. ✔ $100\ kg/cm^2$

4. ✖ $75\ kg/cm^2$

Question Number : 23 Question Id : 2839368463 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What treatment is adopted for making timber fire-resistant

Options :

1. ✔ Abel's process

2. ✖ ASCU treatment

3. ✖ Creosoting Process

4. ✖ Tarring

Question Number : 24 Question Id : 2839368464 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a construction project, the cost-slope of an activity is an indication of

Options :

1. ✖ Extra time needed

2. ✔ Extra cost needed

3. ✖ Reduction of duration of critical activity

4. ✖ Crashing of an activity

Question Number : 25 Question Id : 2839368465 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In PERT analysis, the time estimates of activities and probability of their occurrence follow

Options :

1. ✖ Poisson's distribution

2. ✖ Gamma distribution

3. ✖ Normal distribution

4. ✔ Beta distribution

Question Number : 26 Question Id : 2839368466 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The flexural strength of M30 grade concrete as per IS: 456-2000 is

Options :

1. ✔ 3.83 MPa

2. ✖ 5.47 MPa

3. ✖ 15.23 MPa

4. ✖ 30.0 MPa

Question Number : 27 Question Id : 2839368467 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a combined footing for two columns carrying unequal loads, the maximum hogging moment occurs at

Options :

1. ✖ The inside face of the heavier column

2. ✖ A section equidistant from both the columns

3. ✖ A section subjected to maximum shear force

4. ✔ A section subjected to zero shear force

Question Number : 28 Question Id : 2839368468 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A reinforced concrete structure has to be constructed along a sea coast. The minimum grade of concrete to be used as per IS : 456-2000 is

Options :

1. ✖ M40

2. ✔ M30

3. ✖ M25

4. ✖ M20

Question Number : 29 Question Id : 2839368469 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A simply supported prestressed concrete beam is of 25 m span. The initial stress is 1000 Mpa. The slip in the jack during tensioning has been 2 mm. If $E_S = 200$ GPa, the loss of prestress due to anchorage slip is

Options :

1. ✔ 1.6%

2. ✖ 12%

3. ✖ 10%

4. ✖ 16%

Question Number : 30 Question Id : 2839368470 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A concrete beam of rectangular cross section 200 mm x 400 mm is pre-stressed with a force of 400 kN at an eccentricity of 100 mm. The maximum compressive stress in the concrete is

Options :

1. ✖ $5.0\ N/mm^2$

2. ✖ $7.5\ N/mm^2$

3. ✔ $12.5\ N/mm^2$

4.

✖ $15\ N/mm^2$

Question Number : 31 Question Id : 2839368471 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

As per IS 800: 2007, the cross-section in which extreme fiber can reach the yield stress but cannot develop the plastic moment of resistance due to local buckling is classified as

Options :

1. ✖ Plastic section

2. ✖ Compact section

3. ✔ Semi compact section

4. ✖ Shear section

Question Number : 32 Question Id : 2839368472 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

According to IS : 875 (Part 3) : 2015, the design wind speed acting on industrial roof is estimated based on the basic wind speed by multiplying it by factors K_1, K_2, K_3 and K_4, where K_1 is called

Options :

1. ✖ Terrain height factor

2. ✖ Structure size factor

3. ✖ Topography Factor

4. ✔ Risk Coefficient

Question Number : 33 Question Id : 2839368473 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a plate girder, the web plate is connected to the flange plates by fillet welding. The size of the fillet welds is designed to safely resist

Options :

1. ✖ The bending stresses in the flange

2. ✖ The vertical shear force at the section

3. ✔ The horizontal shear force between the flanges and the web plate

4. ✖ The forces causing buckling in the web

Question Number : 34 Question Id : 2839368474 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The permissible stress in axial tension in steel member on the net effective area of the section shall not exceed (f_y is the yield stress)

Options :

1. ✖ $0.50\ f_y$

2. ✔ $0.60\ f_y$

3. ✖ $0.75\ f_y$

4. ✖ $0.80\ f_y$

Question Number : 35 Question Id : 2839368475 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following elements of a pitched roof industrial steel building primarily resists lateral load parallel to the ridge?

Options :

1. ✔ Bracings

2. ✖ Purlins

3. ✖ Truss

4. ✖ Columns

Question Number : 36 Question Id : 2839368476 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

How many cubic meters of soil having void ratio of 0.7 can be made from 30 m^3 of soil with void ratio of 1.2?

Options :

1. ✖ 36.6 m^3

2. ✖ 30.0 m^3

3. ✖ 25.9 m^3

4. ✔ 23.2 m^3

Question Number : 37 Question Id : 2839368477 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the water content of a fully saturated soil mass is 100%, then the void ratio of the sample is

Options :

1. ✖ Less than specific gravity of soil

2. ✔ Equal to specific gravity of soil

3. ✖ Greater than specific gravity of soil

4. ✖ Independent of specific gravity of soil

Question Number : 38 Question Id : 2839368478 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

As per Indian Standard Soil Classification System (IS: 1498 - 1970), the expression for A-line is

Options :

1. ✔ $Ip = 0.73\ (W_L - 20)$

2. ✖ $Ip = 0.70\ (W_L - 20)$

3. ✖ $Ip = 0.73\ (W_L - 10)$

4. ✖ $Ip = 0.70\ (W_L - 10)$

Question Number : 39 Question Id : 2839368479 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The contact pressure for a rigid footing resting on clay at the centre and the edges are respectively

Options :

1. ✖ Maximum and zero

2. ✖ Maximum and minimum

3. ✖ Zero and maximum

4. ✔ Minimum and maximum

Question Number : 40 Question Id : 2839368480 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a compaction test, as the compaction effort is increased, the optimum moisture content

Options :

1. ✔ Decreases

2. ✖ Remains same

3. ✖ Increases

4. ✖ Increases first and thereafter decreases

Question Number : 41 Question Id : 2839368481 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The time for a clay layer to achieve 85% of consolidation is 10 years. If the layer was half as thick,10 times more permeable and 4 times more compressible then the time that would be required to achieve the same degree of consolidation is

Options :

1. ✔ 1 years

2. ✖ 5 years

3. ✖ 10 years

4. ✖ 15 years

Question Number : 42 Question Id : 2839368482 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The most suitable type of equipment for compaction of cohesive soils is

Options :

1. ✖ Smooth-wheeled roller

2. ✖ Vibratory roller

3. ✔ Sheep foot roller

4. ✖ Tamper

Question Number : 43 Question Id : 2839368483 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Permeability of granular soil varies

Options :

1. ✖ Inversely as grain size

2. ✖ As grain size

3. ✔ As square of grain size

4. ✖ Inversely as square of grain size

Question Number : 44 Question Id : 2839368484 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Quick sand condition occurs when

Options :

1. ✖ The void ratio of the soil becomes 1.0

2. ✖ The upward seepage pressure in soil becomes zero

3. ✖ The upward seepage pressure in soil becomes equal to the saturated unit weight of the soil

4. ✔ The upward seepage pressure in soil becomes equal to the submerged unit weight of the soil

Question Number : 45 Question Id : 2839368485 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The unconfined compressive strength of a saturated clay sample is 54 kPa, the value of cohesion for the clay is

Options :

1. ✖ zero

2. ✖ 13.5 kPa

3. ✔ 27 kPa

4. ✖ 54 kPa

Question Number : 46 Question Id : 2839368486 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Four columns of a building are to be located within a plot of size 10m×10m. The expected load on each column is 400 kN. Allowable bearing capacity of soil deposit is 100 kN /m^2. The type of foundation to be used is

Options :

1. ✔ Isolated foundation

2. ✖ Raft foundation

3. ✖ Pile foundation

4. ✖ Combined foundation

Question Number : 47 Question Id : 2839368487 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A strip footing 8m wide is designed for a total settlement of 40mm. The safe bearing capacity (shear) was 150kN/m^2 and safe allowable soil pressure was 100kN/m^2. Due to importance of the structure, now the footing is to be redesigned for total settlement of 25mm. The new width of the footing will be

Options :

1. ✖ 5m

2. ✖ 8m

3. ✖ 12m

4. ✔ 12.8m

Question Number : 48 Question Id : 2839368488 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A 3m high retaining wall is supporting a saturated sand (saturated due to capillary action) of bulk density 18 kN/m^3 and angle of shearing resistance is 30°. The change in magnitude of active earth pressure at the base due to rise in ground water table from the base of the footing to the ground surface shall (γ_w = 10 kN/m^3)

Options :

1. ✖ Decrease by 20 kN/m^2

2. ✔ Increase by 20 kN/m^2

3. ✖ Increase by 30 kN/m^2

4. ✖ Decrease by 30 kN/m^2

Question Number : 49 Question Id : 2839368489 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Method of slices for determining stability of slopes was first suggested by

Options :

1. ✖ Taylor

2. ✖ Bishop

3. ✔ Fellineous

4. ✖ Terzaghi

Question Number : 50 Question Id : 2839368490 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a plate load test conducted on cohesionless soil, a 600 mm square test plate settles by 15 mm under a load intensity of 0.2 N/mm^2. If all conditions remain same then the settlement of a 1 m square footing will be

Options :

1. ✖ Less than 15 mm

2. ✖ Greater than 25 mm

3. ✖ 15.6 mm

4. ✔ 20.5mm

Question Number : 51 Question Id : 2839368491 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Minimum center to center spacing of friction piles of diameter (D) as per BIS code is

Options :

1. ✖ 1.5D

2. ✖ 2D

3. ✖ 2.5D

4. ✔ 3.0D

Question Number : 52 Question Id : 2839368492 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A pile is being driven with a drop hammer weighing 1800 kg and having a free fall of 1 m. If the penetration with last blow is 5 mm, the load carrying capacity of the pile, according to the Engineering New's formula, is

Options :

1. ✔ 10 tonnes

2. ✖ 50 tonnes

3. ✖ 20 tonnes

4. ✖ 100 tonnes

Question Number : 53 Question Id : 2839368493 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For designing end bearing piles of square cross section in clays having average unconfined compressive strength of $60kN/m^2$, the net ultimate bearing capacity may be taken as

Options :

1. ✔ $270\ kN/m^2$

2. ✖ $200\ kN/m^2$

3. ✖ $180\ kN/m^2$

4. ✖ $60\ kN/m^2$

Question Number : 54 Question Id : 2839368494 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Cyclic pile load tests are carried out to determine

Options :

1. ✖ Cohesion of the soil

2. ✖ Friction angle of the soil

3. ✖ Negative skin friction

4. ✔ Skin friction and point bearing component of a pile

Question Number : 55 Question Id : 2839368495 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the case of Pile foundation negative skin friction may occur at a load, which is

Options :

1. ✖ Equal to the design load

2. ✖ Higher than the design load

3. ✔ Lower than the design load

4. ✖ Independent of the load

Question Number : 56 Question Id : 2839368496 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the volume of a liquid weighing 3000 kg is 4 cubic meters, 0.75 is its

Options :

1. ✖ Specific weight

2. ✖ Specific mass

3. ✔ Specific gravity

4. ✖ Viscosity

Question Number : 57 Question Id : 2839368497 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The moment of inertia of a floating body along its longitudinal axis and the volume of water displaced by it are I and V respectively. The height of the metacentre above centre of buoyancy of the body, is

Options :

1. ✖ $\frac{I}{2V}$

2. ✖ $\frac{2I}{V}$

3. ✖ $\frac{V}{I}$

4. ✔ $\frac{I}{V}$

Question Number : 58 Question Id : 2839368498 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The ratio of maximum velocity to average velocity of viscous fluid through a circular pipe is

Options :

1. ✖ 0.5

2. ✖ 0.75

3. ✖ 1.25

4. ✔ 2.0

Question Number : 59 Question Id : 2839368499 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Reynolds number signifies the ratio of

Options :

1. ✖ Gravity forces to viscous forces

2. ✔ Inertial forces to viscous forces

3. ✖ Inertial forces to gravity forces

4. ✖ Buoyant forces to inertia forces

Question Number : 60 Question Id : 2839368500 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the velocity of flow as well as the diameter of the flowing pipe are respectively doubled through a pipe system in use since long, the head loss will thereafter be

Options :

1. ✖ Halved

2. ✔ Doubled

3. ✖ Increased 4 times

4. ✖ No change

Question Number : 61 Question Id : 2839368501 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Critical depth at a section of a rectangular channel is 1.5m. The specific energy at that section is

Options :

1. ✖ 0.75m

2. ✖ 1.0m

3.

✖ 1.5m

4. ✔ 2.25m

Question Number : 62 Question Id : 2839368502 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A hydraulic turbine develops 5000 kW under a head of 30 m when running at 100 rpm. This turbine belongs to the category of

Options :

1. ✖ Pelton wheel

2. ✖ Kaplan Turbine

3. ✔ Francis Turbine

4. ✖ Propeller Turbine

Question Number : 63 Question Id : 2839368503 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An isohyte is a line joining points of

Options :

1. ✖ Equal humidity

2. ✔ Equal rainfall depth

3. ✖ Equal Return period

4. ✖ Equal evaporation

Question Number : 64 Question Id : 2839368504 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A Storm of duration 5 hours gives a direct run-off of 4 cm and has an average intensity of 2 cm / hr, the value of φ − index is

Options :

1. ✔ 1.2

2. ✖ 1.6

3. ✖ 1

4. ✖ 1.4

Question Number : 65 Question Id : 2839368505 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A 1 hour rainfall of 10 cm has return period of 50 years. The probability that 1 hour rainfall of 10 cm or more will occur in each of two successive years is

Options :

1. ✖ 0.04

2. ✖ 0.2

3. ✖ 0.02

4. ✔ 0.0004

Question Number : 66 Question Id : 2839368506 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Muskingum method of flood routing is a

Options :

1. ✖ Form of hydraulic routing of a flood

2. ✖ Form of reservoir routing

3. ✖ Complete numerical solution of St.Venant equations

4. ✔ Hydrological channel routing method

Question Number : 67 Question Id : 2839368507 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The surface joining the static levels in several non-pumping wells penetrating a continuous confined aquifer represents

Options :

1. ✖ Water-table surface

2. ✖ Capillary fringe

3. ✔ Piezometric surface of the aquifer

4. ✖ Physical top surface of the aquifer

Question Number : 68 Question Id : 2839368508 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The transplantation of rice requires 10 days and total depth of water required during transplantation is 48 cm. During transplantation there is an effective rainfall (useful for irrigation) of 8 cm. The duty of irrigation water in hectare/cumecs is

Options :

1. ✖ 612

2. ✔ 216

3. ✖ 300

4. ✖ 108

Question Number : 69 Question Id : 2839368509 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Wetted perimeter of a regime channel for a discharge of 64 cumecs as per Lacey's theory will be

Options :

1. ✗ 19 m

2. ✓ 38 m

3. ✗ 57 m

4. ✗ 76 m

Question Number : 70 Question Id : 2839368510 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For medium silt whose average grain size is 0.16 mm, Lacey's silt factor will be

Options :

1. ✗ 0.30

2. ✗ 0.45

3. ✓ 0.7

4. ✗ 1.32

Question Number : 71 Question Id : 2839368511 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In natural water, hardness is mainly caused by

Options :

1. ✖ Ca^{++} and Mn^{++}

2. ✖ Ca^{++} and Fe^{++}

3. ✖ Na^{+} and K^{++}

4. ✔ Ca^{++} and Mg^{++}

Question Number : 72 Question Id : 2839368512 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The most common constituents of alkalinity in natural water are measured by titrating the water sample with 0.02 N H_2SO_4 using

Options :

1. ✖ Eriochrome Black T and Ferroin indicators

2. ✖ Ferroin and Phenolphthalein indicators

3. ✔ Phenolphthalein and Methyl Orange indicators

4. ✖ Methyl Orange and Eriochrome Black T indicators

Question Number : 73 Question Id : 2839368513 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The maximum safe permissible limit of sulphates in domestic water supply is

Options :

1. ✖ 100 mg/L

2. ✔ 200 mg/L

3. ✖ 500 mg/L

4. ✖ 600 mg/L

Question Number : 74 Question Id : 2839368514 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The detention time in the plane sedimentation tank is usually

Options :

1. ✔ 4 to 8 hours

2. ✖ 8 to 12 hours

3. ✖ 16 to 24 hours

4. ✖ 24 to 48 hours

Question Number : 75 Question Id : 2839368515 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In disinfection, which of the following forms of chlorine is most effective in killing the pathogenic bacteria

Options :

1. ✖ Cl

2. ✖ OCl

3. ✔ HOCl

4. ✖ NH_2Cl

Question Number : 76 Question Id : 2839368516 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a domestic waste water sample, COD and BOD are measured. Which of the following statement is true for their relative magnitude?

Options :

1. ✖ $\frac{COD}{BOD} = 1$

2. ✔ $\frac{COD}{BOD} > 1$

3. ✖ $\frac{COD}{BOD} < 1$

4. ✖ $\frac{COD}{BOD} = \infty$

Question Number : 77 Question Id : 2839368517 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A sample of sewage is estimated to have a 5 days 20°C BOD of 250 mg/l. If the test temperature is 30°C, for how many days will the same value of BOD be obtained

Options :

1. ✖ 1.5 days

2. ✖ 2.5 days

3. ✔ 3.3 days

4. ✖ 7.5 days

Question Number : 78 Question Id : 2839368518 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In aerobic environment, nitrosomonas convert

Options :

1. ✔ NH_3 to NO_2

2. ✖ NO_2 to NO_3

3. ✖ NH_3 to N_2O

4. ✖ NO_2 to HNO_3

Question Number : 79 Question Id : 2839368519 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The dominating microorganisms in an activated sludge process reactor are

Options :

1. ✔ Aerobic heterotrophs

2. ✖ Anaerobic heterotrophs

3. ✖ Autotrophs

4. ✖ Phototrophs

Question Number : 80 Question Id : 2839368520 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Trickling filters are used to remove

Options :

1. ✖ Suspended solids

2. ✔ Colloidal solids

3. ✖ Organic matter

4. ✖ Vegetation matter

Question Number : 81 Question Id : 2839368521 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

As per IS:4954-1964, an acceptable noise level for residential areas is

Options :

1. ✖ 15 to 25 dB

2. ✖ 30 to 40 dB

3. ✔ 40 to 50 dB

4. ✖ 50 to 60 dB

Question Number : 82 Question Id : 2839368522 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A source emits 40 dB, 70 dB and 110 dB of noise at different times in a day. What is the average noise produced by the source in a day?

Options :

1. ✖ 220 dB

2. ✔ 100 dB

3. ✖ 80 dB

4. ✖ 74 dB

Question Number : 83 Question Id : 2839368523 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An air parcel having 50°C temperature moves from ground level to 800 m elevation in dry air following an adiabatic lapse rate. The resulting temperature of air parcel at 800 m elevation will be

Options :

1. ✖ 50°C

2. ✔ 42°C

3. ✖ 40°C

4. ✖ 35°C

Question Number : 84 Question Id : 2839368524 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two electrostatic precipitators are in series. The fractional efficiencies of the upstream and downstream ESPS for size dp are 90% and 80% respectively. What is the overall efficiency of the system for the same dp ?

Options :

1. ✔ 98%

2. ✖ 95%

3. ✖ 93%

4. ✖ 90%

Question Number : 85 Question Id : 2839368525 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If energy content of solid waste as discarded is 14,700 kJ/Kg, find energy content on dry basis if moisture content of solid waste is 20%

Options :

1. ✖ 14,700 kJ/kg

2. ✖ 15,000 kJ/kg

3. ✖ 18,000 kJ/kg

4. ✔ 18,375 kJ/kg

Question Number : 86 Question Id : 2839368526 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A vehicle was stopped in two seconds by fully jamming the brakes. The skid marks are measured as 9.8 meters. The average skid resistance coefficient will be

Options :

1. ✖ 0.7

2. ✔ 0.5

3. ✖ 0.4

4. ✖ 0.25

Question Number : 87 Question Id : 2839368527 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Stopping sight distance and frictional coefficients are

Options :

1. ✖ Directly proportional to each other

2. ✔ Inversely proportional to each other

3. ✖ Unrelated

4. ✖ Either directly or Inversely proportional to each other depending on the nature of the pavement

Question Number : 88 Question Id : 2839368528 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The length of Summit Curve on a two-lane two-way highway depends upon

Options :

1. ✖ Allowable rate of change of centrifugal acceleration

2. ✖ Coefficient of lateral friction

3. ✔ Required Stopping Sight Distance

4. ✖ Required Overtaking Sight Distance

Question Number : 89 Question Id : 2839368529 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A road is having a horizontal curve of 400m radius on which a super-elevation of 0.07 is provided.

The coefficient of lateral friction mobilized on the curve when a vehicle is travelling at 100kmph is

Options :

1. ✖ 0.07

2. ✔ 0.13

3. ✖ 0.15

4. ✖ 0.4

Question Number : 90 Question Id : 2839368530 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A road is being designed for a speed of 110 km/hr on a horizontal curve with a super elevation of 8%. If the coefficient of side friction is 0.10, the minimum radius of the curve (in m) required for safe vehicular movement is

Options :

1. ✖ 115.0

2. ✖ 152.3

3. ✖ 264.3

4. ✔ 528.5

Question Number : 91 Question Id : 2839368531 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Steepest gradient permitted on roads, which in ordinary conditions is not exceeded is known as

Options :

1. ✔ Ruling gradient

2. ✖ Maximum gradient

3. ✖ Exceptional gradient

4. ✖ Floating gradient

Question Number : 92 Question Id : 2839368532 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Creep is the

Options :

1. ✔ Longitudinal movement of the rail

2. ✖ Lateral movement of the rail

3. ✖ Vertical movement of the rail

4. ✖ Difference in level of two rails

Question Number : 93 Question Id : 2839368533 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For a Broad-gauge route with M+7 sleeper density, number of sleepers per rail length is

Options :

1. ✖ 16

2. ✖ 18

3. ✔ 20

4. ✖ 21

Question Number : 94 Question Id : 2839368534 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

During calm period, wind intensity is less than

Options :

1. ✖ 4.8 kmph

2. ✔ 6.4 kmph

3. ✖ 8.0 kmph

4. ✖ 9.6 kmph

Question Number : 95 Question Id : 2839368535 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The center to center spacing of heliport lighting along the periphery of landing and take off area should be

Options :

1. ✖ 2.5 m

2. ✖ 5.0 m

3. ✔ 7.5 m

4. ✖ 10.0 m

Question Number : 96 Question Id : 2839368536 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Flexible pavements derive stability primarily from

Options :

1. ✔ Aggregate interlock, particle friction and cohesion

2. ✖ Cohesion alone

3. ✖ The binding power of bituminous materials

4. ✖ The flexural strength of the surface course

Question Number : 97 Question Id : 2839368537 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Aggregate impact value indicates the following property of aggregates

Options :

1. ✖ Durability

2. ✔ Toughness

3. ✖ Hardness

4. ✖ Strength

Question Number : 98 Question Id : 2839368538 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Penetration test on bitumen is used to determine its

Options :

1. ✔ Grade

2. ✖ Viscosity

3. ✖ Ductility

4. ✖ Temperature Susceptibility

Question Number : 99 Question Id : 2839368539 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The function of an expansion joint in rigid pavements is to

Options :

1. ✖ Relieve Warping Stresses

2. ✖ Relieve Shrinkage Stresses

3. ✔ Allow Free expansion

4. ✖ Resist stresses due to expansion

Question Number : 100 Question Id : 2839368540 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In compacted cylindrical bituminous mix, VMA = 15% (void mineral aggregate) & Vv= 4.5% (air void), the magnitude of VFB (void filled bituminous) is

Options :

1. ✖ 24

2. ✖ 30

3. ✖ 54

4. ✔ 70

Question Number : 101 Question Id : 2839368541 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Benkelman beam deflection is used for design of

Options :

1. ✖ Rigid overlay on rigid pavement

2. ✖ Flexible overlay on flexible pavement

3. ✔ Rigid overlay on flexible pavement

4. ✖ Flexible overlay on rigid pavement

Question Number : 102 Question Id : 2839368542 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The shape of the STOP sign according to IRC:67-2001 is

Options :

1. ✖ Circular

2. ✖ Rectangular

3. ✖ Triangular

4. ✔ Octagonal

Question Number : 103 Question Id : 2839368543 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

On a right-angled road intersection with two-way traffic, the total number of conflict points is

Options :

1. ✔ 24

2. ✖ 18

3. ✖ 11

4. ✖ 6

Question Number : 104 Question Id : 2839368544 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The most efficient traffic signal system is

Options :

1. ✖ Simple Progressive system

2. ✔ Flexible Progressive system

3. ✖ Alternate system

4. ✖ Simultaneous system

Question Number : 105 Question Id : 2839368545 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The maximum number of vehicles beyond which the rotary may not function efficiently is

Options :

1. ✖ 500 vehicles per hour

2. ✖ 500 vehicles per day

3. ✔ 5000 vehicles per hour

4. ✖ 5000 vehicles per day

Question Number : 106 Question Id : 2839368546 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The survey carried out to delineate natural features, such as hills, rivers, forests and man-made features such as towns, villages, buildings, roads, transmission lines and canals is classified as

Options :

1. ✖ Engineering survey

2. ✖ Geological survey

3. ✖ Land survey

4. ✔ Topographic survey

Question Number : 107 Question Id : 2839368547 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The plotting of inaccessible points in a plane table survey can be done by the method of

Options :

1. ✖ Interpolation

2. ✔ Intersection

3. ✖ Radiation

4. ✖ Traversing

Question Number : 108 Question Id : 2839368548 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

R.L. of floor at a building is 74.4 m, staff reading on the floor is 1.625 m and staff reading when it is held inverted with bottom touching the ceiling of a hall is 2.870 m, then the height of the ceiling above the floor is

Options :

1. ✖ 3.593 m

2. ✖ 3.953 m

3. ✔ 4.495 m

4. ✖ 4. 594 m

Question Number : 109 Question Id : 2839368549 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The main principle of surveying is to work

Options :

1. ✖ From part to the whole

2. ✔ From whole to the part

3. ✖ From higher level to the lower level

4. ✖ From lower level to higher level

Question Number : 110 Question Id : 2839368550 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In levelling operation

Options :

1. ✖ The first sight on any change point is a back sight

2. ✖ The second sight on any change point is a fore sight

3. ✖ The line commences with a fore sight and closes with a back sight

4. ✔ The line commences with a back sight and closes with a fore sight

Question Number : 111 Question Id : 2839368551 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The chainage of the intersection point of two straights is 1585.60 m and the angle of intersection is 140°. If the radius of a circular curve is 600.00 m, the tangent distance (in m) and length of the curve (in m) respectively are

Options :

1. ✖ 418.88 and 1466.08

2. ✖ 218.38 and 1648.49

3. ✔ 218.38 and 418.88

4. ✖ 418.88 and 218.38

Question Number : 112 Question Id : 2839368552 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The most widely used antenna in GPS is

Options :

1. ✔ Microstrip antenna

2. ✖ Parabolid antenna

3. ✖ Slotted antenna

4. ✖ Horn antenna

Question Number : 113 Question Id : 2839368553 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The minimum number of satellites needed for a GPS to determine its position precisely is

Options :

1. ✖ 8

2. ✖ 6

3. ✔ 4

4. ✖ 3

Question Number : 114 Question Id : 2839368554 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The system that uses the sun as a source of electro-magnetic energy and records the naturally radiated and reflected energy from the object is called as

Options :

1. ✖ Active Remote sensing

2. ✔ Passive Remote sensing

3. ✖ Global Positioning systems

4. ✖ Geographical information systems

Question Number : 115 Question Id : 2839368555 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A tall tower was photographed from an elevation of 700m above the datum. The radial distances of the top and bottom of the tower from the principal points are 112.50 mm and 82.4 mm respectively. If the bottom of the tower is at an elevation of 250 m above the datum, then the height of the tower in meter is

Options :

1. ✔ 120.4

2. ✖ 60.2

3. ✖ 240.8

4. ✖ 112.5

Question Number : 116 Question Id : 2839368556 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the sum of all the forces acting on a body is zero, then the body may be in equilibrium provided the forces are

Options :

1. ✖ Parallel

2. ✔ Concurrent

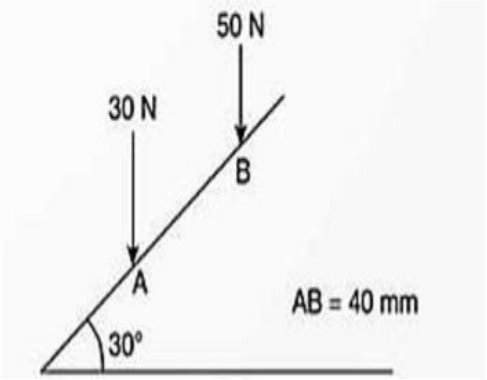
3. ✖ Coplanar

4. ✖ Unlike Parallel

Question Number : 117 Question Id : 2839368557 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Determine the point of action of the resultant forces acting on the inclined plane as shown in the figure



Options :

1. ✖ 20 mm from A

2. ✖ 20 mm from B

3. ✔ 25 mm from A

4. ✖ 25 mm from B

Question Number : 118 Question Id : 2839368558 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A rescue airplane flying at a height of 500 m from ground for a flood effected area drops a rescue kit travelling at 200 m/s. How much distance does the airplane travel from the point of releasing the kit to the point of the kit hitting the ground. (Neglect air resistance)

Options :

1. ✔ 2.019 km

2. ✖ 20.19 km

3. ✖ 250 m

4. ✖ 10 km

Question Number : 119 Question Id : 2839368559 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Ratio of moment of inertia of a sphere and that of a cylinder having same radius and mass about their centroidal axis is

Options :

1. ✖ $\frac{1}{5}$

2. ✖ $\frac{5}{2}$

3. ✖ $\frac{2}{5}$

4. ✔ $\frac{4}{5}$

Question Number : 120 Question Id : 2839368560 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two balls of weights 6N and 2N are made to collide with each other. The velocities of the balls before collision are 4 m/s and 8 m/s respectively and 2N ball is moving in opposite direction to 6N ball. What is the ratio of velocities of the 6N ball after the collision, when the impact considered having a coefficient of restitution of 0.5 and the impact is perfectly elastic.

Options :

1. ✖ 1.0

2. ✔ 0.25

3. ✖ 0.5

4. ✖ 0.75