tscte

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Civil Engineering

Group Number :	1
Group Id :	39090048
Group Maximum Duration :	0
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Break time:	0
Group Marks:	120

Mathematics

Section Id :	39090089
Section Number :	1
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	10
Number of Questions to be attempted:	10
Section Marks:	10
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	39090089
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 3909005641 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For which value of ' b 'the rank of the matrix $\begin{bmatrix} 1 & 5 & 4 \\ 0 & 3 & 2 \\ b & 13 & 10 \end{bmatrix}$ is 2?

Options :

1. 0

2. 1

3. 2

4. 3

Question Number : 2 Question Id : 3909005642 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following statement is not true?

Options :

1. If λ is an Eigen value of A then $\frac{1}{\lambda}$ is an Eigen value A^{-1}.

2. If λ is an Eigen value of an orthogonal matrix then $\frac{1}{\lambda}$ is also Eigen value.

3. Every Square matrix satisfies its own characteristics equation.

4. The product of the Eigen value of a matrix A is equal to trace of the matrix.

Question Number : 3 Question Id : 3909005643 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Assuming Rolle's theorem for $f(x) = \log\left(\frac{x^2+ab}{x(a+b)}\right)$ in $[a,b], a>0, b>0$. If there exists a real number $c \in (a,b)$. Then the value of c is

Options :

1. $a+b$

2. $\sqrt{ab}$

3. $\frac{a+b}{2}$

4. $\sqrt{a+b}$

Question Number : 4 Question Id : 3909005644 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The directional derivative of the scalar function $f(x,y,z)=e^{2x-y+z}$ all at the point $P(1,1,-1)$ in the direction of the vector $\hat{a}=-4\hat{i}$ is

Options :

1. -8

2. -7

3. 8

4. 7

Question Number : 5 Question Id : 3909005645 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The value of $\oint_C (3x+4y)dx+(2x-3y)dy$ around the circle $x^2+y^2=4$ is

Options :

1. -4π

2. -8π

3. -12π

4. -16π

Question Number : 6 Question Id : 3909005646 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The integrating factor for the differential equation $(1-x^2)\frac{dy}{dx}+2xy=x\sqrt{1-x^2}$ is

Options :

1. $\frac{1}{1-x^2}$

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

3. $\tan^{-1}(x)$

4. $\cot^{-1}(x)$

Question Number : 7 Question Id : 3909005647 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If $L\{F(t)\}=f(p)$ then $L\{F'(t)\}$ is

Options :

1. $L\{F'(t)\}=pf(p)+f(0)$

2. $L\{F'(t)\}=f(p)-f(0)$

3. $L\{F'(t)\}=f(p)+f(0)$

4. $L\{F'(t)\}=pf(p)-f(0)$

Question Number : 8 Question Id : 3909005648 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A random variable X has the density function $f(x)=\begin{cases}\frac{1}{4}, & -2<x<2\\ 0, & elsewhere\end{cases}$. The value of $P(X<1)$ is

Options :

1. $\frac{3}{4}$

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

3. $\frac{5}{4}$

4. $\frac{6}{5}$

Question Number : 9 Question Id : 3909005649 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The mean and variance of the binomial distributions are 4 and 3 respectively. The value of $P(X\geq 1)$ is

Options :

1. $1+\left(\frac{3}{4}\right)^{16}$

2. $1-\left(\frac{1}{4}\right)^{16}$

3. $1-\left(\frac{3}{4}\right)^{16}$

4. $1+\left(\frac{1}{4}\right)^{16}$

Question Number : 10 Question Id : 3909005650 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Newton –Raphson iterative formula for finding $\sqrt{C}$ is

Options :

1. $x_{n+1} = \left(x_n + \frac{C}{x_n} \right)$

2. $x_{n+1} = \frac{1}{2}\left(x_n + \frac{C}{x_n} \right)$

3. $x_{n+1} = \left(x_n - \frac{C}{x_n} \right)$

4. $x_{n+1} = \frac{1}{2}\left(x_n - \frac{C}{x_n} \right)$

Civil Engineering

Section Id :	39090090
Section Number :	2
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	110
Number of Questions to be attempted:	110
Section Marks:	110
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	39090090
Question Shuffling Allowed :	Yes

Question Number : 11 Question Id : 3909005651 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The ratio of the moment of inertia of a beam of circular cross section of diameter ‘a’ to that of square cross section of side ‘a’ about their neutral axis is

Options :

1. 2π

2. $2\pi/16$

3. $3\pi/16$

4. $5\pi/12$

Question Number : 12 Question Id : 3909005652 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Frictional force encountered after commencement of motion is called

Options :

1. dynamic friction

2. limiting friction

3. static friction

4. post friction

Question Number : 13 Question Id : 3909005653 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The ratio of elongations of a conical bar due to its own weight and that of a prismatic bar of the same length and weight is,

Options :

1. 1/2

2. 1/4

3. 1/3

4. 1/6

Question Number : 14 Question Id : 3909005654 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The number of independent elastic constants for a linear elastic isotropic and homogeneous material is

Options :

1. 3

2. 1

3. 9

4. 2

Question Number : 15 Question Id : 3909005655 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A solid cube is subjected to equal normal forces on all its faces. What will be the ratio between volumetric strain and linear strain in any of the three axes?

Options :

1. 3:1

2. 1:1

3. 2:1

4. 4:1

Question Number : 16 Question Id : 3909005656 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Energy stored in a beam of length L subjected to a constant bending moment, M is,

Options :

1. ML/2EI

2. $ML^2/2EI$

3. $M^2L/2EI$

4. ML^2/EI

Question Number : 17 Question Id : 3909005657 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A beam of length L is pinned at both ends and is subjected to a concentrated bending couple of moment M at its centre. The maximum sagging bending moment in the beam is

Options :

1. M/3

2. M/2

3. M

4. ML/2

Question Number : 18 Question Id : 3909005658 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the ratio of maximum shear stress to average shear stress for a circular section.?

Options :

1. 4:3

2. 2:1

3. 2:3

4. 3:2

Question Number : 19 Question Id : 3909005659 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Shear span is defined as the zone where

Options :

1. Bending moment is zero

2. Shear force is zero

3. Shear force is constant

4. Bending moment is constant

Question Number : 20 Question Id : 3909005660 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Slate is formed by metamorphic action on,

Options :

1. sand stone

2. lime stone

3. granite

4. shale

Question Number : 21 Question Id : 3909005661 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Ratio of the undisturbed shear strength to the remoulded shear strength in cohesive soil under undrained conditions is

Options :

1. equal to one

2. less than one

3. zero

4. greater than one

Question Number : 22 Question Id : 3909005662 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A first class brick when immersed in water for 24 hours should not absorb water more than

Options :

1. 15%

2. 10%

3. 25%

4. 20%

Question Number : 23 Question Id : 3909005663 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Number of bricks required for one cubic metre of brick masonry is

Options :

1. 400

2. 550

3. 600

4. 500

Question Number : 24 Question Id : 3909005664 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Type of lime used in lime concrete is

Options :

1. fat lime

2. quick lime

3. hydraulic lime

4. slaked lime

Question Number : 25 Question Id : 3909005665 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Percentage of carbon content in mild steel is

Options :

1. less than 0.25

2. between 0.50 and 0.70

3. between 0.70 and 0.90

4. greater than 0.90

Question Number : 26 Question Id : 3909005666 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The slenderness ratio for non-load bearing masonry walls should not be more than

Options :

1. 30

2. 20

3. 10

4. 25

Question Number : 27 Question Id : 3909005667 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The vertical distance between the spring line and highest point of the inner curve of an arch is known as

Options :

1. intrados

2. extrados

3. rise

4. haunch

Question Number : 28 Question Id : 3909005668 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The minimum depth of foundation for buildings on clays is

Options :

1. 0.90 to 1.60 m

2. 0.40 to 0.60 m

3. 0.20 to 0.40 m

4. 0.60 to 0.90 m

Question Number : 29 Question Id : 3909005669 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In limit state design, the limiting value of depth of neutral axis for Fe 250 grade steel is

Options :

1. 0.48 d

2. 0.43 d

3. 0.45 d

4. 0.53 d

Question Number : 30 Question Id : 3909005670 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Shape factor for a solid circular section in plastic analysis is

Options :

1. 1.5

2. 1.6

3. 1.7

4. 1.9

Question Number : 31 Question Id : 3909005671 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The shear force of a conjugate beam represents _____ of the actual beam.

Options :

1. bending moment

2. deflection

3. slope

4. curvature

Question Number : 32 Question Id : 3909005672 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Width of the analogus column in the column analogy method is

Options :

1. 2/EI

2. 1/2EI

3. 1/EI

4. 1/4EI

Question Number : 33 Question Id : 3909005673 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Deformation of a spring subjected to a unit load is

Options :

1. stiffness

2. unit strain

3. flexibility

4. toughness

Question Number : 34 Question Id : 3909005674 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The effective length of a battened column is increased by

Options :

1. 15%

2. 20%

3. 10%

4. 5%

Question Number : 35 Question Id : 3909005675 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Slenderness ratio of a column supported throughout its length by masonry wall on either side in both longitudinal and lateral directions is

Options :

1. hundred

2. zero

3. ten

4. infinity

Question Number : 36 Question Id : 3909005676 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The stresses acting on the web splice of a plate girder are

Options :

1. shear and axial stresses

2. shear and bending stresses

3. axial stresses

4. axial and bending stresses

Question Number : 37 Question Id : 3909005677 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the bulk modulus (K) of a material is four times its modulus of rigidity (G), then the Poisson's ratio is

Options :

1. 3/13

2. 5/13

3. 7/13

4. 9/13

Question Number : 38 Question Id : 3909005678 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Drops are provided in flat slab to resist,

Options :

1. bending moment

2. thrust

3. torsion

4. shear

Question Number : 39 Question Id : 3909005679 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An example for igneous rock is

Options :

1. dolomite

2. lime stone

3. sandstone

4. granite

Question Number : 40 Question Id : 3909005680 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Ratio of volume of voids in soil and volume of soil solids is known as

Options :

1. porosity

2. void ratio

3. density

4. specific gravity

Question Number : 41 Question Id : 3909005681 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If a soil sample has a void ratio of 0.6, its porosity is

Options :

1. 44.4%

2. 33.3%

3. 37.5%

4. 41.1%

Question Number : 42 Question Id : 3909005682 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Toughness index of soil is defined as the ratio of

Options :

1. liquidity index to flow index

2. plasticity index to consistency index

3. consistency index to liquidity index

4. plasticity index to flow index

Question Number : 43 Question Id : 3909005683 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following soils has more plasticity index?

Options :

1. gravel

2. sand

3. silt

4. clay

Question Number : 44 Question Id : 3909005684 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Field vane shear test is used to find the

Options :

1. Penetration resistance

2. Load settlement data

3. Point resistance and skin friction

4. In situ shear strength

Question Number : 45 Question Id : 3909005685 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Coefficient of consolidation for clays normally

Options :

1. increases with increase in liquid limit

2. remains constant

3. decreases with increase in liquid limit

4. first increases and then decrease with increase in liquid limit

Question Number : 46 Question Id : 3909005686 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Unconfined compressive strength test is suitable for

Options :

1. Cohesionless soils

2. C - ϕ soils

3. Cohesive soils

4. Aggregates

Question Number : 47 Question Id : 3909005687 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If a cohesive soil specimen is subjected to a vertical compressive load, the inclination of rupture surface to the horizontal is

Options :

1. 90^0

2. 60^0

3. 30^0

4. 45^0

Question Number : 48 Question Id : 3909005688 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Lime stabilisation is suitable for

Options :

1. silty soils

2. sandy soils

3. plastic clayey soils

4. non-plastic soils

Question Number : 49 Question Id : 3909005689 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Ratio of settlement at any time 't' to the final settlement is known as

Options :

1. consolidation index

2. coefficient of consolidation

3. degree of consolidation

4. consolidation of undisturbed soil

Question Number : 50 Question Id : 3909005690 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Terzaghi's equation of ultimate bearing capacity for a strip footing may be used for square footing resting on pure clay soil with the correction factor equal to

Options :

1. 1.3

2. 0.6

3. 0.4

4. 1.2

Question Number : 51 Question Id : 3909005691 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If two soil samples X and Y have porosities 30% and 70% respectively, then the product of their void ratio is

Options :

1. 0

2. 1

3. 2

4. 2.5

Question Number : 52 Question Id : 3909005692 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Determination of ultimate bearing capacity on an eccentrically loaded square footing depends upon the concept of effective contact

Options :

1. area

2. volume

3. weight

4. mineralogy of soil

Question Number : 53 Question Id : 3909005693 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Liquefaction occurs in

Options :

1. dry dense sand

2. saturated dense sand

3. saturated loose sand

4. dry silty sand

Question Number : 54 Question Id : 3909005694 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In consolidation test, curve fitting method is used to determine

Options :

1. swelling index

2. coefficient of consolidation

3. compression index

4. time factor

Question Number : 55 Question Id : 3909005695 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

According to Skempton's formula for a surface footing of square shape, the net ultimate bearing capacity on a purely cohesive soil of cohesion 'c' is

Options :

1. 6.0 c

2. 9.0 c

3. 8.0 c

4. 7.4 c

Question Number : 56 Question Id : 3909005696 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Factor of safety for stability of structures against sliding under most adverse forces should not be less than

Options :

1. 1.8

2. 1.5

3. 2.1

4. 2.3

Question Number : 57 Question Id : 3909005697 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Local shear failure occurs beneath a footing in case of

Options :

1. dense gravel

2. loose sand

3. soil with N-value > 30

4. dense sand

Question Number : 58 Question Id : 3909005698 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

During seepage through a soil mass, the direction of seepage is

Options :

1. parallel to equipotential lines

2. along the direction of gravity

3. perpendicular to the stream lines

4. perpendicular to equipotential lines

Question Number : 59 Question Id : 3909005699 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Deflection of a sheet pile in a braced cut

Options :

1. decreases from top to bottom

2. increases from top and then decreases

3. decreases from top and then increases

4. increases from top to bottom

Question Number : 60 Question Id : 3909005700 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Minimum centre to centre spacing of friction piles of diameter 'D' as per BIS code is

Options :

1. 3 D

2. 1.5 D

3. 5.0 D

4. 2 D

Question Number : 61 Question Id : 3909005701 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A clear dry sand sample is tested in a direct shear test. The normal stress and the shear stress at failure are both equal to120 kN/m^2. The angle of shearing resistance of sand will be

Options :

1. 55^0

2. 45^0

3. 35^0

4. 25^0

Question Number : 62 Question Id : 3909005702 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Modulus of subgrade reaction of a soil is determined by

Options :

1. field CBR test

2. plate load test

3. standard penetration test

4. cyclic pile load test

Question Number : 63 Question Id : 3909005703 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Lacustrine soils are soils

Options :

1. transported by wind

2. deposited in lake beds

3. transported by glaciers

4. deposited in sea beds

Question Number : 64 Question Id : 3909005704 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Ratio of bearing capacity of double under reamed pile to that of single under reamed pile is nearly,

Options :

1. 1.5

2. 1.2

3. 1.7

4. 2

Question Number : 65 Question Id : 3909005705 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Specific gravity of oil whose specific weight is 7.85 kN/m^3 is

Options :

1. 1.0

2. 0.6

3. 1.2

4. 0.8

Question Number : 66 Question Id : 3909005706 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Variation in the volume of a liquid with variation of pressure is known as

Options :

1. viscosity

2. dynamic viscosity

3. compressibility

4. rogosity

Question Number : 67 Question Id : 3909005707 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Unit of dynamic viscosity is

Options :

1. stokes

2. centistokes

3. rhe

4. centipoise

Question Number : 68 Question Id : 3909005708 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Relationship between stress and strain of Newtonian fluid is

Options :

1. linear

2. inverse

3. parabolic

4. hyperbolic

Question Number : 69 Question Id : 3909005709 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Shape of water drop is spherical due to

Options :

1. adhesion

2. capillarity

3. cohesion

4. viscosity

Question Number : 70 Question Id : 3909005710 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Stream lines and path lines always coincide in case of

Options :

1. steady flow

2. vortex flow

3. turbulent flow

4. hydraulic jump

Question Number : 71 Question Id : 3909005711 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Coefficient of velocity for Borda's mouthpiece running full is

Options :

1. 1.00

2. 0.611

3. 0.855

4. 0.707

Question Number : 72 Question Id : 3909005712 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Ratio of average velocity to maximum velocity for steady laminar flow in circular pipe is

Options :

1. 2/3

2. 1/2

3. 3/2

4. 2

Question Number : 73 Question Id : 3909005713 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Speed of a pressure wave through a pipe primarily depends upon

Options :

1. viscosity of fluid

2. length of pipe

3. bulk modulus of the fluid

4. original head

Question Number : 74 Question Id : 3909005714 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A hyetograph is defined as a graph representing

Options :

1. Runoff versus time

2. Rainfall intensity versus time

3. Discharge versus time

4. Cumulative infiltration versus time

Question Number : 75 Question Id : 3909005715 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Aquiclude is a geological formation

Options :

1. which is a completely impermeable layer

2. with low yield

3. with water and high yield

4. without yield

Question Number : 76 Question Id : 3909005716 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The sum of specific yield and specific retention is equal to

Options :

1. permeability coefficient

2. saturation

3. storage coefficient

4. porosity

Question Number : 77 Question Id : 3909005717 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The best unit duration of storm for a unit hydrograph is

Options :

1. one hour

2. one-half of basin lag

3. equal to basin lag

4. one-fourth of basin lag

Question Number : 78 Question Id : 3909005718 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

When the reservoir is full, the maximum compressive stress in a gravity dam is produced

Options :

1. at the heel

2. at the toe

3. at the centre of base

4. within the middle third of base

Question Number : 79 Question Id : 3909005719 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

According to Khosla's theory, the exit gradient in the absence of a downstream cutoff is

Options :

1. unity

2. zero

3. infinity

4. five

Question Number : 80 Question Id : 3909005720 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Vertical drop fall is satisfactory for a height upto

Options :

1. 0.5 m

2. 2.5 m

3. 2.0 m

4. 1.5 m

Question Number : 81 Question Id : 3909005721 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a barrage, the exit gradient is independent of

Options :

1. the depth of downstream cutoff

2. the applied head of water

3. the horizontal length of floor

4. the depth of upstream cutoff

Question Number : 82 Question Id : 3909005722 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Identify the one among the following that constitutes the basic assumption of unit hydrograph theory

Options :

1. non-linear time variance and linear response

2. time invariance and linear response

3. non-linear response and time invariance

4. linear response and linear time variance

Question Number : 83 Question Id : 3909005723 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Efficiency of a sedimentation tank, for a given discharge, can be increased by

Options :

1. increasing the depth of tank

2. decreasing the depth of tank

3. decreasing the surface area of tank

4. increasing the surface area of the tank

Question Number : 84 Question Id : 3909005724 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Disinfection efficiency is

Options :

1. unaffected by pH value of water

2. increased at higher pH value of water

3. reduced at higher pH value of water

4. lowest at pH value equal to 7

Question Number : 85 Question Id : 3909005725 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The application of chlorine to water beyond the stage of break point is known as

Options :

1. Plain chlorination

2. Pre-chlorination

3. Post-chlorination

4. Super chlorination

Question Number : 86 Question Id : 3909005726 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Gas from sludge digestion tank is mainly composed of crude

Options :

1. nitrogen

2. methane

3. hydrogen sulphide

4. carbon dioxide

Question Number : 87 Question Id : 3909005727 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the coefficient of rugosity is increased from 0.01 to 0.02, the gradient of a pipe of a given diameter to carry the same flow at the same velocity will be

Options :

1. increased by two times

2. decreased by two times

3. increased by four times

4. decreased by four times

Question Number : 88 Question Id : 3909005728 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Ringelmann's scale is used to

Options :

1. measure CO

2. grade automobile exhaust gas

3. grade density of smoke

4. measure SO_2

Question Number : 89 Question Id : 3909005729 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the total hardness of water is less than its total alkalinity, the non-carbonate hardness will be equal to

Options :

1. total hardness

2. zero

3. total alkalinity-total hardness

4. total alkalinity

Question Number : 90 Question Id : 3909005730 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Detention time in flocculator is

Options :

1. 60 min

2. 120 min

3. 30 min

4. 1 min

Question Number : 91 Question Id : 3909005731 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Valve used to remove sediment in a pipe is called

Options :

1. scour valve

2. drain valve

3. air valve

4. sluice valve

Question Number : 92 Question Id : 3909005732 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The first stage of natural process of sludge digestion is

Options :

1. acid regression

2. adsorption

3. acid fermentation

4. alkaline fermentation

Question Number : 93 Question Id : 3909005733 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The maximum tolerance in a 20 m chain is

Options :

1. ±5 mm

2. ±2 mm

3. ±3 mm

4. ±4 mm

Question Number : 94 Question Id : 3909005734 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The horizontal angle between the true meridian and magnetic meridian at a place is called

Options :

1. azimuth

2. local attraction

3. declination

4. magnetic bearing

Question Number : 95 Question Id : 3909005735 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the magnetic bearing of the sun at a place at noon in southern hemisphere is 167^0, the magnetic declination at that place is

Options :

1. 77^0 N

2. 13^0 E

3. 23^0 S

4. 13^0 W

Question Number : 96 Question Id : 3909005736 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The process of turning the telescope about vertical axis in horizontal plane is known as

Options :

1. transiting

2. plunging

3. reversing

4. swinging

Question Number : 97 Question Id : 3909005737 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the horizontal distance between the staff point and the point of observation is 'd', then the error due to curvature of earth is proportional to

Options :

1. d^2

2. d

3. 1/d

4. $1/d^2$

Question Number : 98 Question Id : 3909005738 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The angle between the prolongation of the preceding line and the forward line of a traverse is called

Options :

1. included angle

2. direct angle

3. outer angle

4. deflection angle

Question Number : 99 Question Id : 3909005739 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Agonic line is the line joining points having

Options :

1. zero declination

2. same elevation

3. minimum declination

4. maximum declination

Question Number : 100 Question Id : 3909005740 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The representative fraction 1/2500 means that the scale is 1 cm equal to

Options :

1. 2.5 m

2. 25 m

3. 2.5 km

4. 250 m

Question Number : 101 Question Id : 3909005741 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is used to measure both angles and distances?

Options :

1. total station

2. prismatic compass

3. theodolite

4. level

Question Number : 102 Question Id : 3909005742 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The recommended value of camber for water bound macadam road in heavy rainfall areas is

Options :

1. 1 in 24

2. 1 in 36

3. 1 in 48

4. 1 in 40

Question Number : 103 Question Id : 3909005743 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the stopping distance is 60 m, then the minimum stopping sight distance for two lane two way traffic is

Options :

1. 180 m

2. 120 m

3. 30 m

4. 60 m

Question Number : 104 Question Id : 3909005744 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For the design of super elevation for mixed traffic conditions, speed is reduced by

Options :

1. 25%

2. 15%

3. 20%

4. 75%

Question Number : 105 Question Id : 3909005745 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the preferred shape for a valley curve?

Options :

1. simple parabola

2. spiral

3. simple circular curve

4. cubic parabola

Question Number : 106 Question Id : 3909005746 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The diagram which shows the approximate path of vehicles and pedestrians involved in accidents is known as

Options :

1. Condition diagram

2. Spot map

3. Collison diagram

4. Scatter diagram

Question Number : 107 Question Id : 3909005747 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The background colour of warning sign board is

Options :

1. red

2. green

3. white

4. yellow

Question Number : 108 Question Id : 3909005748 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Toughness of road aggregates is measured using

Options :

1. impact test

2. durability test

3. abrasion test

4. crushing test

Question Number : 109 Question Id : 3909005749 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The group index value of subgrade is between 18 and 20, the subgrade soil is treated as

Options :

1. fair

2. poor

3. good

4. very good

Question Number : 110 Question Id : 3909005750 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Rigidity factor for a tyre pressure greater than 7 kg/cm^2 is

Options :

1. equal to one

2. less than one

3. greater than one

4. zero

Question Number : 111 Question Id : 3909005751 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For which of the following surveys, the desire lines are plotted

Options :

1. Volume

2. Speed

3. Origin & destination

4. Accident

Question Number : 112 Question Id : 3909005752 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. 6

2. 11

3. 18

4. 24

Question Number : 113 Question Id : 3909005753 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Safe speed on a highway is

Options :

1. 50^{th} percentile speed

2. 85^{th} percentile speed

3. 98^{th} percentile speed

4. 15^{th} percentile speed

Question Number : 114 Question Id : 3909005754 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If volume is denoted by 'q', density by 'k' and speed by 'u', which of the following is the fundamental equation of traffic flow?

Options :

1. $k = qu$

2. $u = qk$

3. $q = k^2u$

4. $q = ku$

Question Number : 115 Question Id : 3909005755 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Ruling gradient in plain terrain as per IRC is

Options :

1. 1 in 30

2. 1 in 40

3. 1 in 20

4. 1 in 50

Question Number : 116 Question Id : 3909005756 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Home interview survey data are cross checked using

Options :

1. cordon line counts

2. roadside interview count

3. screen line counts

4. moving observer count

Question Number : 117 Question Id : 3909005757 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The best shape of central island for a rotary at cross roads is

Options :

1. elliptical

2. square

3. circular

4. elongated

Question Number : 118 Question Id : 3909005758 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Composite sleeper index is the index of

Options :

1. strength and toughness

2. wear resistance and hardness

3. toughness and wear resistance

4. hardness and strength

Question Number : 119 Question Id : 3909005759 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Conical surface of the approach area rises outwards at

Options :

1. 1 in 25

2. 1 in 15

3. 1 in 20

4. 1 in 10

Question Number : 120 Question Id : 3909005760 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Maximum permissible cant deficiency on BG track for a speed > 100 kmph is

Options :

1. 50 mm

2. 100 mm

3. 75 mm

4. 25 mm