

Question Paper Preview**Notations :**

- Options shown in green color and with ✓ icon are correct.
- Options shown in red color and with ✗ icon are incorrect.

Question Paper Name:	Civil Engineering 30th May 2018 Shift2
Subject Name:	Civil Engineering
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Magnifying Glass Required?:	No
Ruler Required?:	No
Eraser Required?:	No
Scratch Pad Required?:	No
Rough Sketch/Notepad Required?:	No
Protractor Required?:	No

Display Number Panel:

Yes

Group All Questions:

No

Question Number : 1 Question Id : 5113468521 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $X = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & 3 \\ 1 & 3 & k \end{bmatrix}$ is a singular matrix then $k =$

Options :

- ✗ 2
- ✗ 3
- ✗ 4
- ✓ 5

Question Number : 2 Question Id : 5113468522 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The Eigen values of the matrix $A = \begin{bmatrix} 4 & 1 \\ 2 & 3 \end{bmatrix}$ are

Options :

1. ✓ 2 and 5
2. ✗ 3 and 4
3. ✗ 1 and 5
4. ✗ 2 and 7

Question Number : 3 Question Id : 5113468523 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The value of $\lim_{x \rightarrow \frac{\pi}{2}} \frac{\cot x}{\frac{\pi}{2} - x}$ is

Options :

1. ✗ 0(zero)
2. ✓ 1
3. ✗ π
4. ✗ ∞

Question Number : 4 Question Id : 5113468524 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $\tan y = \frac{2t}{1-t^2}$, $\sin x = \frac{2t}{1+t^2}$ then $\frac{dy}{dx} =$

Options :

1. ✗ $-\infty$
2. ✗ ∞
3. ✗ 0
4. ✓ 1

Question Number : 5 Question Id : 5113468525 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The function $f(x) = \log_e x$ in $[1, e]$ satisfies all the conditions of Lagrange's mean value theorem. Then c of the mean value theorem is

Options :

1. ✓ $e - 1$

2. ✗ $1 - e$

3. ✗ $\frac{1-e}{2}$

4. ✗ $\frac{1+e}{2}$

Question Number : 6 Question Id : 5113468526 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $\int_0^{\frac{\pi}{2}} \sin^4 x \cos^2 x \, dx = k$, then $k =$

Options :

1. ✗ $\frac{3}{32}$

2. ✗ $\frac{5}{32}$

3. ✓ $\frac{\pi}{32}$

4. ✗ π

Question Number : 7 Question Id : 5113468527 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The integrating factor of the equation $x \log x \frac{dy}{dx} + y = \frac{2}{x} \log x$ is

Options :

1. ✗ x

2. ✖ $\frac{1}{x}$

3. ✔ $\log x$

4. ✖ $\log(\log x)$

Question Number : 8 Question Id : 5113468528 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The solution of the differential equation $y(2xy+1)dx - xdy = 0$ is

Options :

1. ✔ $\frac{x}{y} + x^2 = c$

2. ✖ $\frac{x}{y} - x^2 = c$

3. ✖ $\frac{x}{y} + x^3 = c$

4. ✖ $\frac{x}{y} - x^3 = c$

Question Number : 9 Question Id : 5113468529 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If the vector point function $f = (x+z)i + (3x + \lambda y)j + (x - 5z)k$ is a solenoidal then the value of λ is

Options :

1. ✖ 3

2. ✖ -5

3. ✔ 4

4. ✖ 6

Question Number : 10 Question Id : 5113468530 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The maximal directional derivative of $\phi(x, y, z) = x^2y + yz^2 - xz^3$ at $(-1, 2, 1)$ is

Options :

1. ✖ $\sqrt{47}$
2. ✔ $\sqrt{78}$
3. ✖ $\sqrt{87}$
4. ✖ $\sqrt{91}$

Display Number Panel:

Group All Questions:

Yes

No

Question Number : 11 Question Id : 5113468531 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following mineral admixtures can be used for preparing a synthetic aggregate?

Options :

1. ✖ Silica Fume
2. ✔ Fly Ash
3. ✖ Metakaolin
4. ✖ Slag

Question Number : 12 Question Id : 5113468532 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For heavily reinforced concrete members, the nominal maximum size of the aggregate is

_____.

Options :

1. ✖ 5mm less than the minimum clear distance between the main bars
2. ✖ 5mm less than the minimum cover to the reinforcement
3. ✔ Smaller of first two options
4. ✖ Larger of first two options

Question Number : 13 Question Id : 5113468533 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For very high category of workability, which of the following is most appropriate?

Options :

1. ✖ Compacting factor test
2. ✖ Slump Test
3. ✖ Vee-Bee Test
4. ✔ Flow Test

Question Number : 14 Question Id : 5113468534 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The minimum grade of concrete for reinforced concrete members subjected to extreme exposure conditions is _____.

Options :

1. ✖ M25
2. ✖ M30
3. ✖ M35
4. ✔ M40

Question Number : 15 Question Id : 5113468535 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which test is not an example of non-destructive test of concrete?

Options :

1. ✗ Rebound hammer
2. ✗ Probe penetration
3. ✗ Ultrasonic pulse velocity
4. ✓ Core test

Question Number : 16 Question Id : 5113468536 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Standard H/D ratio for indirect tensile strength test for concrete specimen is _____.

Options :

1. ✗ 1.5
2. ✓ 2.0
3. ✗ 2.5
4. ✗ 3.0

Question Number : 17 Question Id : 5113468537 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

pH value of water for quality concrete shall not be less than _____.

Options :

1. ✗ 8
2. ✗ 4
3. ✓ 6
4. ✗ 12

Question Number : 18 Question Id : 5113468538 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following compound is added at the time of grinding of cement clinkers for the purpose of delaying the setting time?

Options :

1. ✖ Calcium chloride
2. ✔ Gypsum
3. ✖ Lime
4. ✖ Silica

Question Number : 19 Question Id : 5113468539 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The point where bending moment changes its sign is called the point of _____.

Options :

1. ✖ Superposition
2. ✔ Contraflexure
3. ✖ Symmetry
4. ✖ Bending Axes

Question Number : 20 Question Id : 5113468540 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What is the maximum value of Poisson's ratio for an elastic material?

Options :

1. ✖ 0.25
2. ✖ 0.75
3. ✔ 0.5
4. ✖ 1.0

Question Number : 21 Question Id : 5113468541 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The forces for which a web splice of a plate girder is designed for _____.

Options :

1. ✗ Axial forces
2. ✗ Shear and axial forces
3. ✓ Shear force and bending moment
4. ✗ Axial force and bending moment

Question Number : 22 Question Id : 5113468542 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following sections should preferably be used at places where torsion occurs?

Options :

1. ✗ Angle section
2. ✗ Channel section
3. ✓ Box type section
4. ✗ Rail section

Question Number : 23 Question Id : 5113468543 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The effective length of a fillet weld should not be less than _____.

Options :

1. ✗ 2 times the weld size
2. ✓ 4 times the weld size
3. ✗ 6 times the weld size
4. ✗ Weld size

Question Number : 24 Question Id : 5113468544 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In the virtual work method, the virtual quantity is _____.

Options :

1. ✓ Displacement
2. ✗ Load
3. ✗ Slope
4. ✗ Moment

Question Number : 25 Question Id : 5113468545 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What does the bending moment at any section in a conjugate beam represents for the actual beam _____?

Options :

1. ✗ Slope
2. ✗ Curvature
3. ✓ Deflection
4. ✗ Bending moment

Question Number : 26 Question Id : 5113468546 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What do 15 specify in M15?

Options :

1. ✗ Compressive strength of 150 mm size cube after 7 days in N/mm^2
2. ✗ Compressive strength of 150 mm size cube after days in N/mm^2
3. ✓ Compressive strength of 150 mm size cube after 28 days in N/mm^2
4. ✗ Compressive strength of 150 mm size cube after 90 days in N/mm^2

Question Number : 27 Question Id : 5113468547 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The ratio of the moment of inertia of a rectangle about its centroidal axis to the moment of inertia about its base, is _____.

Options :

1. ✓ $1/4$
2. ✗ $1/2$
3. ✗ $3/4$
4. ✗ 2

Question Number : 28 Question Id : 5113468548 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

How do you estimate Modulus of rupture, if characteristic compressive strength (f_{ck}) of concrete is known?

Options :

1. ✓ $0.7\sqrt{f_{ck}}$
2. ✗ $5000\sqrt{f_{ck}}$
3. ✗ $0.7f_{ck}$
4. ✗ $5000f_{ck}$

Question Number : 29 Question Id : 5113468549 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A column that fails due to direct stress, is called _____.

Options :

1. ✓ Short column
2. ✗ Long column
3. ✗ Weak column

4. ✖

Question Number : 30 Question Id : 5113468550 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

When the seepage pressure becomes equal to the pressure due to submerged weight of a soil, the effective pressure is reduced to zero and the soil particles have a tendency to move up in the direction of flow. This phenomenon is generally known as _____.

Options :

1. ✔ Quick condition

2. ✖ Bulking of sand

3. ✖ Floating condition

4. ✖ Plasticity

Question Number : 31 Question Id : 5113468551 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The shearing strength of a cohesion-less soil depends upon _____.

Options :

1. ✖ Dry density

2. ✖ Rate of loading

3. ✔ Confining pressure

4. ✖ Nature of loading.

Question Number : 32 Question Id : 5113468552 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Cohesive soils are generally _____.

Options :

1. ✔ Plastic and also compressible

2. ✖ Elastic and also compressible
3. ✖ Plastic but incompressible
4. ✖ Non-plastic and incompressible.

Question Number : 33 Question Id : 5113468553 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Plasticity index is defined as the difference of water content between _____.

Options :

1. ✔ Liquid and plastic limit
2. ✖ Plastic limit and shrinkage limit
3. ✖ Shrinkage limit and liquid limit
4. ✖ Liquid limit and natural moisture content

Question Number : 34 Question Id : 5113468554 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Stoke's law does not hold good if the size of particle is smaller than _____.

Options :

1. ✔ 0.0002 mm
2. ✖ 0.002 mm
3. ✖ 0.02 mm
4. ✖ 0.2 mm

Question Number : 35 Question Id : 5113468555 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The reduction in volume of soil due to squeezing out of water from the voids, is termed _____.

Options :

1. ✓ Primary consolidation
2. ✗ Porosity
3. ✗ Saturation
4. ✗ Compaction

Question Number : 36 Question Id : 5113468556 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The shear strength in plastic undrained clay, is due to _____.

Options :

1. ✗ Inter-granular friction
2. ✗ Internal friction
3. ✓ Cohesion
4. ✗ Water

Question Number : 37 Question Id : 5113468557 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The Terzaghi's general bearing capacity equation for a continuous footing is given by _____, where N_c , N_q & N_γ are bearing capacity factors.

Options :

1. ✓ $q_f = cN_c + \gamma DN_q + 0.5\gamma BN_\gamma$
2. ✗ $q_f = cN_c - \gamma DN_q + 0.5\gamma BN_\gamma$
3. ✗ $q_f = cN_c + \gamma DN_q - 0.5\gamma BN_\gamma$
4. ✗ $q_f = cN_c - \gamma DN_q - 0.5\gamma BN_\gamma$

Question Number : 38 Question Id : 5113468558 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The property of a soil which permits water to percolate through it, is called _____.

Options :

1. ✖ Porosity
2. ✔ Permeability
3. ✖ Capillarity
4. ✖ Absorption

Question Number : 39 Question Id : 5113468559 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Cassagrande's apparatus is used to determine _____?

Options :

1. ✖ Shrinkage Limit
2. ✖ Dry density
3. ✔ Liquid Limit
4. ✖ Specific Gravity

Question Number : 40 Question Id : 5113468560 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Triaxial compression test is used to find which property of the soil?

Options :

1. ✖ Compressive strength
2. ✖ Permeability
3. ✖ Specific gravity
4. ✔ Shear strength

Question Number : 41 Question Id : 5113468561 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which is the measure of loss of strength with remolding, with water content unchanged?

Options :

1. ✗ Compressibility
2. ✗ Sensitivity
3. ✗ Stability
4. ✓ Thixotropy

Question Number : 42 Question Id : 5113468562 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Originally, Rankine's theory of lateral earth pressure was applicable to:

Options :

1. ✓ Cohesion less soil
2. ✗ Cohesive soil
3. ✗ Fine grained soil
4. ✗ Coarse grained soil

Question Number : 43 Question Id : 5113468563 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What will be the co-efficient of passive earth pressure, at a depth of 8m in cohesion less soil sand with an angle of internal friction of 30° when water rises to the ground level?

Options :

1. ✗ 4
2. ✗ 5
3. ✓ 3
4. ✗ 1

Question Number : 44 Question Id : 5113468564 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following equation defines Darcy's law?

Options :

1. ✗ $q=KA$
2. ✗ $q=K/A$
3. ✓ $q=K i A$
4. ✗ $q=K i/A$

Question Number : 45 Question Id : 5113468565 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The constant head permeability test is used for _____ soils.

Options :

1. ✗ Fine-Grained Soil
2. ✓ Coarse-Grained Soil
3. ✗ Clay Soil
4. ✗ Saturated Soil

Question Number : 46 Question Id : 5113468566 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The coefficient of lateral friction as recommended by IRC is _____.

Options :

1. ✓ 0.15
2. ✗ 0.40
3. ✗ 0.35
4. ✗ 0.30

Question Number : 47 Question Id : 5113468567 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The design of horizontal and vertical alignments, super elevation, gradient is worst affected by _____.

Options :

1. ✗ Length of vehicle
2. ✗ Width of vehicle
3. ✓ Speed of vehicle
4. ✗ Height of vehicle

Question Number : 48 Question Id : 5113468568 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The camber required depends on the _____.

Options :

1. ✗ Pavement surface
2. ✗ Rainfall
3. ✓ Pavement surface and rainfall
4. ✗ Gradient

Question Number : 49 Question Id : 5113468569 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The stopping sight distance does not depend on _____.

Options :

1. ✗ Break reaction time
2. ✗ Speed of vehicle
3. ✓ Length of vehicle
4. ✗ Friction

Question Number : 50 Question Id : 5113468570 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The degree of curve is central angle subtended by an arc of length of _____.

Options :

1. ✗ 20m
2. ✗ 25m
3. ✓ 30m
4. ✗ 35m

Question Number : 51 Question Id : 5113468571 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The super elevation is calculated for _____.

Options :

1. ✗ 75% of design speed including friction
2. ✗ 80% of design speed neglecting friction
3. ✓ 75% of design speed neglecting friction
4. ✗ 80% of design speed including friction

Question Number : 52 Question Id : 5113468572 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The transition curve by recommended by IRC for highway is _____.

Options :

1. ✓ Spiral
2. ✗ Cubic parabola
3. ✗ Parabola
4. ✗ Lemniscate

Question Number : 53 Question Id : 5113468573 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The total shift of a transition curve is _____.

Options :

1. ✗ $L^2/12R$
2. ✓ $L^2/24R$
3. ✗ $L^2/48R$
4. ✗ $L^2/96R$

Question Number : 54 Question Id : 5113468574 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The maximum grade compensation for a curve of radius 75m is _____.

Options :

1. ✓ 1%
2. ✗ 1.4%
3. ✗ 1.5%
4. ✗ 1.6%

Question Number : 55 Question Id : 5113468575 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The speed at any instant of time is called _____.

Options :

1. ✗ Running speed
2. ✗ Travel speed
3. ✓ Spot speed
4. ✗ Space speed

Question Number : 56 Question Id : 5113468576 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If the space mean speed of a vehicle is 50kmph, then the time mean speed will be

_____.

Options :

1. ✗ Less than 50 kmph
2. ✓ Greater than 50 kmph
3. ✗ Equal to 50 kmph
4. ✗ Depends on the vehicle

Question Number : 57 Question Id : 5113468577 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The weaving manoeuvre is a type of _____.

Options :

1. ✗ Merging
2. ✗ Diverging
3. ✗ Intersection
4. ✓ Crossing

Question Number : 58 Question Id : 5113468578 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The distance between the two consecutive vehicles is called _____.

Options :

1. ✓ Space headway
2. ✗ Time headway
3. ✗ Jam density
4. ✗ Traffic flow

Question Number : 59 Question Id : 5113468579 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the traffic signal method is based on saturation flow?

Options :

1. ✖ Trial cycle method
2. ✔ Webster method
3. ✖ IRC method
4. ✖ Approximate method

Question Number : 60 Question Id : 5113468580 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Montmorillonite is a type of mineral which causes expansive behavior is found in _____.

Options :

1. ✔ Black cotton soil
2. ✖ Laterite soil
3. ✖ River soil
4. ✖ Glacial soil

Question Number : 61 Question Id : 5113468581 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If the water content of a soil sample is 25%, and dry density is 16 kN/m^3 then its bulk density is _____

Options :

1. ✖ 18.75 kN/m^3
2. ✖ 19 kN/m^3
3. ✔ 20 kN/m^3

4. ✖ 21kN/m^3

Question Number : 62 Question Id : 5113468582 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The skid number for highways should not be less than _____.

Options :

1. ✔ 55

2. ✖ 45

3. ✖ 35

4. ✖ 25

Question Number : 63 Question Id : 5113468583 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The combined of flakiness index and elongation index should not exceed _____.

Options :

1. ✖ 15

2. ✖ 20

3. ✔ 30

4. ✖ 40

Question Number : 64 Question Id : 5113468584 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The recommended grade of concrete required for pavement quality concrete (PQC) is

_____.

Options :

1. ✖ M30

2. ✖ M35

3. ✔ M40

4. ✖ M45

Question Number : 65 Question Id : 5113468585 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Bitumen is completely soluble in _____.

Options :

1. ✖ Carbon monoxide
2. ✖ Carbon dioxide
3. ✖ Carbon sulfide
4. ✔ Carbon disulfide

Question Number : 66 Question Id : 5113468586 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Bleeding may be avoided by _____.

Options :

1. ✖ Water voids
2. ✔ Air voids
3. ✖ Porosity
4. ✖ Water content

Question Number : 67 Question Id : 5113468587 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which test is carried out to determine the resilient modulus of a subgrade soil?

Options :

1. ✖ Plate Bearing Test
2. ✖ CBR test
3. ✔ Repeated Load Triaxial Test

4. ✖

Unconfined Compression Test

Question Number : 68 Question Id : 5113468588 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the below does not affect the site-selection of an airport site?

Options :

- 1. ✖ Adequate access
- 2. ✖ Air traffic potential
- 3. ✖ Sufficient airspace
- 4. ✔ Number of ground staff

Question Number : 69 Question Id : 5113468589 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The application of _____ diagram is used to find the orientation of runway to get the desired wind coverage.

Options :

- 1. ✖ Wind turbine
- 2. ✖ Wind Cycle
- 3. ✖ Wind Star
- 4. ✔ Wind Rose

Question Number : 70 Question Id : 5113468590 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Track modulus is defined as _____.

Options :

- 1. ✖ Load/unit length of sleeper
- 2. ✖ Load/unit length of sleeper to produce unit depression in rail

3. ✖ Load/unit length of rail

4. ✔ Load/unit length of rail to produce unit depression in track

Question Number : 71 Question Id : 5113468591 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The relation between the air base (B), photographic base (b), flying height (H) and the focal length (f) of a vertical photograph, is _____.

Options :

1. ✔ $B = bH/f$

2. ✖ $B = f/bH$

3. ✖ $B = b/Hf$

4. ✖ $B = H/bf$

Question Number : 72 Question Id : 5113468592 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The station which is selected close to the main triangulation station, to avoid intervening obstruction, is not known as _____.

Options :

1. ✖ Satellite station

2. ✖ Eccentric station

3. ✖ False station

4. ✔ Pivot station.

Question Number : 73 Question Id : 5113468593 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The zenith is the point on the celestial sphere is _____.

Options :

1. ✖ East of observer
2. ✖ West of observer
3. ✖ North of observer
4. ✔ South of observer

Question Number : 74 Question Id : 5113468594 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What is the design discharge for intake structures?

Options :

1. ✔ Maximum daily demand
2. ✖ Maximum hourly demand
3. ✖ Maximum weekly demand
4. ✖ Average daily demand

Question Number : 75 Question Id : 5113468595 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The maximum permissible limit for suspended solids is _____.

Options :

1. ✖ 10 mg/l
2. ✖ 20 mg/l
3. ✔ 30 mg/l
4. ✖ 40 mg/l

Question Number : 76 Question Id : 5113468596 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Identify the correct relation between the following?

Options :

1. ✗ Dissolved solid = Total solid + Suspended solid
2. ✓ Dissolved solid = Total solid – Suspended solid
3. ✗ Total solid = Dissolved solid / Suspended solid
4. ✗ Dissolved solid = Suspended solid – Total solid

Question Number : 77 Question Id : 5113468597 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The permissible limit of pH preferred for potable water is ____ppm.

Options :

1. ✓ 6.5-9
2. ✗ 7-8.5
3. ✗ 10-14
4. ✗ 0-7

Question Number : 78 Question Id : 5113468598 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is a better test to identify Coliforms?

Options :

1. ✗ Coliform index
2. ✗ Multiple tube fermentation
3. ✗ MPN test
4. ✓ Membrane filter technique

Question Number : 79 Question Id : 5113468599 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What is the temperature at which MPN test is performed?

Options :

1. ✗ 35°C
2. ✓ 37°C
3. ✗ 40°C
4. ✗ 45°C

Question Number : 80 Question Id : 5113468600 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following process is used to remove the colloidal particles from water?

Options :

1. ✗ Chemical precipitation
2. ✓ Chemical coagulation
3. ✗ Ion exchange
4. ✗ Adsorption

Question Number : 81 Question Id : 5113468601 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which process of water treatment is done to avoid floating debris, branches, trees or other large particles suspended in water?

Options :

1. ✓ Screening
2. ✗ Aeration
3. ✗ Primary sedimentation
4. ✗ Secondary sedimentation

Question Number : 82 Question Id : 5113468602 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The time period for which the water is stored in a sedimentation tank is called

Options :

1. ✗ Time of flow
2. ✗ Frequency of flow
3. ✗ Settling time
4. ✓ Detention period

Question Number : 83 Question Id : 5113468603 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Settling velocity of a spherical body in a viscous fluid is given by

Options :

1. ✗ Reynold's law
2. ✗ Newton's law
3. ✓ Stoke's law
4. ✗ Charle's law

Question Number : 84 Question Id : 5113468604 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What indicates the permanent hardness when alum is added to water?

Options :

1. ✗ Al(OH)_3
2. ✓ CaSO_4
3. ✗ CO_2
4. ✗ Ca(OH)_3

Question Number : 85 Question Id : 5113468605 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Why Alum is preferred over other coagulants?

Options :

1. ✖ It is easy to dewater the sludge formed
2. ✖ It imparts corrosiveness to water
3. ✔ It reduces taste and odor in addition to turbidity
4. ✖ The time required for floc formation is less

Question Number : 86 Question Id : 5113468606 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In which action of filtration, removal of particulate matter takes place?

Options :

1. ✖ Mechanical Straining
2. ✖ Sedimentation
3. ✖ Biological mechanism
4. ✔ Electrolytic action

Question Number : 87 Question Id : 5113468607 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The value of uniformity coefficient for uniformly graded sand is _____

Options :

1. ✖ 0
2. ✔ 1
3. ✖ 10
4. ✖ 100

Question Number : 88 Question Id : 5113468608 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The slow sand filter is able to remove _____ % of bacteria in water.

Options :

- 1. ✗ 90
- 2. ✗ 95
- 3. ✓ 98-99
- 4. ✗ 100

Question Number : 89 Question Id : 5113468609 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The rate of filtration of pressure filtration is _____ l/m²/hour.

Options :

- 1. ✗ 1000-5000
- 2. ✗ 5000-10000
- 3. ✗ 6000-8000
- 4. ✓ 6000-15000

Question Number : 90 Question Id : 5113468610 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The pathogenic bacteria do not last long at a pH _____

Options :

- 1. ✓ >11
- 2. ✗ <11
- 3. ✗ <8
- 4. ✗ >8

Question Number : 91 Question Id : 5113468611 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Bleaching powder contains _____ of available chlorine.

Options :

1. ✗ 16%
2. ✓ 33.3%
3. ✗ 66.6%
4. ✗ 99.9%

Question Number : 92 Question Id : 5113468612 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The process of chlorination with hypochlorites is called _____.

Options :

1. ✗ Super chlorination
2. ✗ Pre chlorination
3. ✗ Post chlorination
4. ✓ Hypo-chlorination

Question Number : 93 Question Id : 5113468613 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is not used for removing the permanent hardness?

Options :

1. ✗ Lime soda process
2. ✗ Zeolite process
3. ✗ Demineralization
4. ✓ Adding lime

Question Number : 94 Question Id : 5113468614 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What is the minimum quantity of dissolved oxygen that should be present in the treated sewage?

Options :

1. ✗ 6 ppm
2. ✓ 4 ppm
3. ✗ 1 ppm
4. ✗ 10 ppm

Question Number : 95 Question Id : 5113468615 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The carbonaceous demand occurs due to oxidation of _____.

Options :

1. ✗ Ammonia
2. ✗ Sulfur
3. ✓ Organic matter
4. ✗ Nitrogen

Question Number : 96 Question Id : 5113468616 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What is the value of BOD of industrial sewage in kg/day for given population equivalent of 6000 persons?

Options :

1. ✓ 480
2. ✗ 160
3. ✗ 270
4. ✗ 100

Question Number : 97 Question Id : 5113468617 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

5 days BOD at 20°C is _____ of total demand.

Options :

1. ✗ 20%
2. ✗ 47%
3. ✓ 68%
4. ✗ 100%

Question Number : 98 Question Id : 5113468618 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which gas is produced in aerobic digestion of sludge?

Options :

1. ✗ NO₂
2. ✓ CO₂
3. ✗ O₂
4. ✗ H₂S

Question Number : 99 Question Id : 5113468619 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The maximum temperature at which thermophilic microorganisms remain active in sludge digester is _____.

Options :

1. ✓ 60°C
2. ✗ 40°C
3. ✗ 30°C
4. ✗ 20°C

Question Number : 100 Question Id : 5113468620 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The maximum BOD removal efficiency of an oxidation pond is _____.

Options :

1. ✓ 90%
2. ✗ 68%
3. ✗ 70%
4. ✗ 80%

Question Number : 101 Question Id : 5113468621 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In which method of disposal of municipal solid waste, the waste is dumped in the soil?

Options :

1. ✗ Incineration
2. ✗ Composting
3. ✓ Land filing
4. ✗ Shredding

Question Number : 102 Question Id : 5113468622 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which gas is mainly produced due to incomplete burning of wood?

Options :

1. ✓ CO
2. ✗ SO₂
3. ✗ NO₂
4. ✗ NO₃

Question Number : 103 Question Id : 5113468623 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The viscosity of a fluid in motion is 1 Poise. What will be it's viscosity (in Poise) when the fluid is at rest?

Options :

- 1. ✗ 0
- 2. ✗ 0.5
- 3. ✓ 1
- 4. ✗ 2

Question Number : 104 Question Id : 5113468624 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The flow in open channel is said to be subcritical if the Froude number is _____.

Options :

- 1. ✓ Less than 1.0
- 2. ✗ Equal to 1.0
- 3. ✗ Greater than 1.0
- 4. ✗ Zero

Question Number : 105 Question Id : 5113468625 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Equation of continuity of flow is based on the principle of conservation of _____.

Options :

- 1. ✓ Mass
- 2. ✗ Momentum
- 3. ✗ Force

4. ✖ Acceleration

Question Number : 106 Question Id : 5113468626 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Leachate is a coloured liquid that comes out of

Options :

1. ✖ Septic Tanks
2. ✖ Compost Plants
3. ✖ Aerated lagoons
4. ✔ Sanitary land fills

Question Number : 107 Question Id : 5113468627 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The notch angle for maximum discharge over a triangular notch, is _____.

Options :

1. ✖ 30°
2. ✖ 60°
3. ✔ 90°
4. ✖ 120°

Question Number : 108 Question Id : 5113468628 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Weber number is the ratio of inertia force to _____.

Options :

1. ✔ Surface tension
2. ✖ Gravitational force
3. ✖ Elasticity

4. ✖ Viscosity.

Question Number : 109 Question Id : 5113468629 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If H is the depth of water retained by a vertical wall, the height of center of pressure above the bottom is _____.

Options :

1. ✖ $H/2$

2. ✔ $H/3$

3. ✖ $2H/3$

4. ✖ $H/5$

Question Number : 110 Question Id : 5113468630 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The flow in open channel is laminar if the Reynold number is _____.

Options :

1. ✔ Less than 500

2. ✖ More than 500

3. ✖ 1000

4. ✖ Zero

Question Number : 111 Question Id : 5113468631 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The arrangement made near top of dam for passage of excess water from reservoir is known as _____.

Options :

1. ✖ Shuice way

2. ✓ Spillway

3. ✗ Gallery

4. ✗ Abutments

Question Number : 112 Question Id : 5113468632 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The graph of the cumulative values of water quantity against time is known as _____.

Options :

1. ✗ Flow curve

2. ✗ Power curve

3. ✓ Mass curve

4. ✗ Load curve

Question Number : 113 Question Id : 5113468633 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A floating body attains stable equilibrium if its metacenter is _____.

Options :

1. ✗ At the centroid

2. ✓ Above the centroid

3. ✗ Below the centroid

4. ✗ Anywhere

Question Number : 114 Question Id : 5113468634 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Irrigation canals are generally aligned along _____.

Options :

1. ✓ Ridge line

- 2. ✖ Contour line
- 3. ✖ Valley line
- 4. ✖ Straight line

Question Number : 115 Question Id : 5113468635 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Attracting groynes are built _____.

Options :

- 1. ✖ Perpendicular to the bank
- 2. ✔ Inclined down stream
- 3. ✖ Inclined up stream
- 4. ✖ Parallel to the bank

Question Number : 116 Question Id : 5113468636 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The main function of a diversion head works of a canal from a river, is

Options :

- 1. ✖ To remove silt
- 2. ✖ To control floods
- 3. ✖ To store water
- 4. ✔ To raise water level

Question Number : 117 Question Id : 5113468637 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Precipitation caused by lifting of an air mass due to the pressure difference, is called _____.

Options :

1. ✓ Cyclonic precipitation
2. ✗ Convective precipitation
3. ✗ Orographic precipitation
4. ✗ Seasonal precipitation

Question Number : 118 Question Id : 5113468638 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The quantity of water retained by the sub-soil against gravity, is known as _____.

Options :

1. ✗ Yield
2. ✗ Porosity
3. ✗ Specific yield
4. ✓ Specific retention

Question Number : 119 Question Id : 5113468639 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Hydrodynamic pressure due to earthquake acts at a height of _____.

Options :

1. ✗ $3H/4\pi$ above the base
2. ✗ $3H/4\pi$ below the water surface
3. ✓ $4H/3\pi$ above the base
4. ✗ $4H/3\pi$ below the water surface, where H is the depth of water.

Question Number : 120 Question Id : 5113468640 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A seamless pipe with 100 cm diameter carries a fluid under a pressure of 2MPa. If the permissible tensile stress is 100MPa, the minimum required thickness of the pipe is

Options :

- 1. ✖ 20 mm
- 2. ✖ 10 mm
- 3. ✔ 1 mm
- 4. ✖ 2 mm

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