

Telangana State Power Generation Corporation Limited

Notations :

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

Question Paper Name :	Assistant Engineer Civil 14th Jul 2024 Shift 3
Subject Name :	Assistant Engineer Civil
Creation Date :	2024-07-14 19:34:57
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Assistant Engineer Civil

Group Number :	1
Group Id :	1705275
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Show Attended Group? :	No
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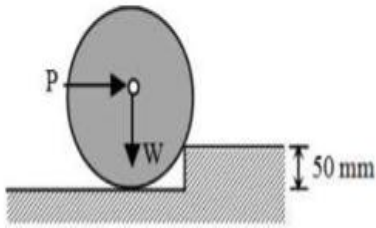
Section A

Section Id :	1705279
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	80

Number of Questions to be attempted :	80
Section Marks :	80
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	1705279
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 170527401 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

If a cylinder of radius 250 mm and weight of $W = 10$ N shown in figure is about to rolled up an obstacle of height 50 mm by applying a horizontal force P at its center, then the horizontal force P is



Options :

1. ✘ 12.5 N
2. ✘ 5.0 N
3. ✘ 6.0 N
4. ✔ 7.5 N

Question Number : 2 Question Id : 170527402 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

For the section having width b and depth d , the second moment of the area about an axis $d/4$ distance above the bottom and parallel to the horizontal axis is

Options :

1. ✘ $bd^3/48$
2. ✘ $bd^3/12$
3. ✔ $7bd^3/48$
4. ✘ $bd^3/3$

Question Number : 3 Question Id : 170527403 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

If a ladder rests on smooth ground and leaning against a rough vertical wall, then the frictional force acts between ladder and vertical wall is

Options :

1. ✘ perpendicular to the vertical wall
2. ✘ along the floor towards wall
3. ✔ along the vertical wall in the upward direction
4. ✘ along the vertical wall in the downward direction

Question Number : 4 Question Id : 170527404 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The equivalent stiffness of two springs having same stiffness k and are in series is

Options :

1. ✘ $4k$

2. ✘ $\frac{k}{4}$

3. ✘ $2k$

4. ✔ $\frac{k}{2}$

Question Number : 5 Question Id : 170527405 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The effective length of a column of length L which is effectively held in position and restrained against rotation at one end but not held in position nor restrained against rotation at the other end is

Options :

1. ✘ $0.5 L$

2. ✘ $0.7 L$

3. ✘ $1.414 L$

4. ✓ 2 L

Question Number : 6 Question Id : 170527406 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

A continuous beam ABC consists of two spans AB = 4 m and BC = 3 m. The end A is fixed and B and C are simply supported. The moment of inertia of spans BA and BC are $2I$ and I respectively. The distribution factor at joint B for span BA is

Options :

1. ✗ $\frac{1}{3}$

2. ✓ $\frac{2}{3}$

3. ✗ 1

4. ✗ $\frac{3}{4}$

Question Number : 7 Question Id : 170527407 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

A simply supported beam AB of span 6m is subjected to a linearly varying load from zero at support A to 30 kN/m at support B. The support reaction at A is

Options :

1. ✓ 30 kN

2. ✗ 60 kN

3. ✗ 90 kN

4. ✗ 180 kN

Question Number : 8 Question Id : 170527408 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The reaction at A of a fixed beam AB having transverse displacement Δ at B without rotation is

(where L is span of beam AB and EI is flexural rigidity of beam)

Options :

1. ✘ $\frac{6EI\Delta}{L^2}$

2. ✘ $\frac{6EI\Delta}{L^3}$

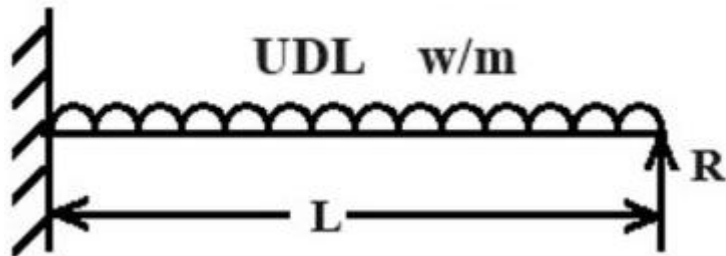
3. ✔ $\frac{12EI\Delta}{L^3}$

4. ✘ $\frac{12EI\Delta}{L^2}$

Question Number : 9 Question Id : 170527409 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Find the reaction R of the propped cantilever shown in the figure



Options :

1. ✘ $\frac{wL}{3}$

2. ✔ $\frac{3}{8}wL$

3. ✘ $\frac{wL}{2}$

4. ✘ $\frac{5}{8}wL$

Question Number : 10 Question Id : 170527410 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

A continuous beam ABC of length 8 m consists of spans AB and BC each 4 m long and is simply supported at A, B and C. The whole beam carries a uniformly distributed load of 40 kN/m. The net bending moment at centre of each span is

Options :

1. ✘ 10 kNm
2. ✘ 20 kNm
3. ✔ 40 kNm
4. ✘ 80 kNm

Question Number : 11 Question Id : 170527411 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Muller Breslau principle in structural analysis is used for

Options :

1. ✔ Drawing influence line diagram for any force function
2. ✘ Writing virtual work equation
3. ✘ Super position of load effects
4. ✘ Static indeterminacy

Question Number : 12 Question Id : 170527412 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

If two hinged parabolic arch of span 16 m and rise 4 m carries a load varying from zero at the left end to 50 kN/m at the right end, then the horizontal thrust at each support is

Options :

1. ✘ 800 kN
2. ✔ 600 kN
3. ✘ 400 kN
4. ✘ 200 kN

Question Number : 13 Question Id : 170527413 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✓ $\frac{-3}{4}$

2. ✗ $\frac{-4}{3}$

3. ✗ $\frac{-1}{2}$

4. ✗ $\frac{-3}{2}$

Question Number : 14 Question Id : 170527414 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

A fine aggregate having percentage passing for 600 micron IS sieve in the range of 35% to 59% falls in

Options :

1. ✗ Zone I

2. ✓ Zone II

3. ✗ Zone III

4. ✗ Zone IV

Question Number : 15 Question Id : 170527415 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

As per IS: 1077:1992, water absorption of class 30 brick in percent by weight shall be

Options :

1. ✗ not greater than 10%

2. ✓ not greater than 15%
3. ✗ not greater than 20%
4. ✗ not greater than 25%

Question Number : 16 Question Id : 170527416 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

Match the following related to construction management

<u>List-I</u>	<u>List-II</u>	<u>List-III</u>
(A) CPM	(i) Event oriented	(a) Probabilistic model
(B) PERT	(ii) Activity oriented	(b) Deterministic model

Correct Options are:

Options :

1. ✓ A-ii-b, B-i-a
2. ✗ A-i-b, B-ii-a
3. ✗ A-ii-a, B-i-b
4. ✗ A-i-a, B-ii-b

Question Number : 17 Question Id : 170527417 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

At the end of the soundness test on cement, the increase in distance between two indicators of Le Chatlier's apparatus should be not more than

Options :

1. ✗ 20 mm
2. ✗ 15 mm
3. ✓ 10 mm
4. ✗ 5 mm

Question Number : 18 Question Id : 170527418 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

An inert tracer is injected continuously from a point in an unsteady flow field. The locus of locations of all tracer particles at an instance of time represents

Options :

1. ✘ Streamline
2. ✘ Pathline
3. ✘ Streamtube
4. ✔ Streakline

Question Number : 19 Question Id : 170527419 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

A liquid compressed in a cylinder has a volume of 0.01 m^3 at 6.0 MPa pressure and a volume of 0.009 m^3 at 13 MPa pressure. The bulk modulus of elasticity of liquid is

Options :

1. ✘ 70 GPa
2. ✔ 70 MPa
3. ✘ 0.7 GPa
4. ✘ 0.7 MPa

Question Number : 20 Question Id : 170527420 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

An error of 1% in measuring head over the crest of the Notch (H) will produce an error of ___ % in discharge over a right-angled triangular notch.

Options :

1. ✘ 5.0
2. ✔ 2.5
3. ✘ 2.0
4. ✘ 1.0

Question Number : 21 Question Id : 170527421 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

The Hydraulic grade line is

Options :

1. ✘ above the energy grade line
2. ✘ above the closed circuit
3. ✔ the velocity head below the energy grade line
4. ✘ always sloping downward in the direction of flow

Question Number : 22 Question Id : 170527422 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

For a constant specific energy of 3.0 N-m/N, to have a maximum discharge in a rectangular channel of 5.0 m wide, the depth of flow is

Options :

1. ✘ 7.5 m
2. ✔ 2.0 m
3. ✘ 3.33 m
4. ✘ 4.5 m

Question Number : 23 Question Id : 170527423 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

Two tanks are connected in parallel by two pipes A and B of identical friction factors and lengths. If the diameter of the pipe A is double than that of pipe B, then their discharge ratio is

Options :

1. ✘ 2.0
2. ✔ 5.66

3. ✘ 6.55

4. ✘ 32

Question Number : 24 Question Id : 170527424 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

At a hydraulic jump, the depths at the two sides are 0.4 m and 1.4 m. The head loss in the jump is nearly

Options :

1. ✔ 0.45 m

2. ✘ 0.7 m

3. ✘ 0.9 m

4. ✘ 1.0 m

Question Number : 25 Question Id : 170527425 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

If the specific speed is not to exceed 700, the number of impellers required for a multistage pump to lift 3840 litres per minute against a total head of 160 m, at a speed of 700 r.p.m are

Options :

1. ✘ 16

2. ✘ 14

3. ✘ 12

4. ✔ 10

Question Number : 26 Question Id : 170527426 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

A vertical shaft Kaplan turbine operating under a head of 9 m has a runner diameter of 10 m. At the optimum regime the turbine runs at 45 r.p.m., and develops 45000 kW power discharging $500 \text{ m}^3/\text{s}$ water. The unit speed of turbine nearly is

Options :

1. ✘ 90
2. ✘ 100
3. ✘ 450
4. ✔ 150

Question Number : 27 Question Id : 170527427 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

The total rainfall observed in a 3hour storm is 80 mm and corresponding surface runoff estimated is 35 mm. Then the value of W – index is (assume effective surface retention is zero)

Options :

1. ✔ 15 mm/hour
2. ✘ 35 mm/hour
3. ✘ 45 mm/hour
4. ✘ 80 mm/hour

Question Number : 28 Question Id : 170527428 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

If the base period of a 6-hour hydrograph of a basin is 84 hours, then a 12 hours unit hydrograph derived from this 6-hour unit hydrograph will have a base period of

Options :

1. ✘ 72 hours
2. ✘ 78 hours
3. ✘ 84 hours
4. ✔ 90 hours

Question Number : 29 Question Id : 170527429 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

The base period of the crop is 100 days and the delta of the crop is 1.0 m. Then the duty of a crop in hectares per cumec is

Options :

1. ✘ 108
2. ✘ 432
3. ✘ 216
4. ✔ 864

Question Number : 30 Question Id : 170527430 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

A reservoir provided with outlets and spillway, but not controlled by gates or valves is called

Options :

1. ✘ Distribution reservoir
2. ✔ Retarding reservoir
3. ✘ Navigation reservoir
4. ✘ Soil conservation reservoir

Question Number : 31 Question Id : 170527431 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

In cross drainage work, where the full supply level of the canal is higher than the bed of the drain is called

Options :

1. ✘ Aqueduct
2. ✔ Syphon
3. ✘ Super passage
4. ✘ Syphon aqueduct

Question Number : 32 Question Id : 170527432 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

As per the ISO:10500 – 2012, the acceptable limit of fluoride in drinking water is

Options :

1. ✘ 2.0 mg/L
2. ✘ 1.5 mg/L
3. ✘ 2.5 mg/L
4. ✔ 1.0 mg/L

Question Number : 33 Question Id : 170527433 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The copperas as coagulant, functions effectively in the pH range of raw waters is

Options :

1. ✘ < 8.0
2. ✔ 8.5 and above
3. ✘ 8.5
4. ✘ 8.0 to 8.5

Question Number : 34 Question Id : 170527434 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The sand filters which yield a very slow rate of filtration and requires large area is

Options :

1. ✘ Pressure and rapid filters
2. ✘ Pressure filters
3. ✘ Rapid sand gravity filter
4. ✔ Slow sand gravity filter

Question Number : 35 Question Id : 170527435 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The turbidity range for clarifying raw waters using coagulants is

Options :

1. ✘ 10 to 20 mg/L
2. ✔ 30 to 50 mg/L
3. ✘ 0 to 5 mg/L
4. ✘ 5 to 10 mg/L

Question Number : 36 Question Id : 170527436 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

A small sized curved pipe made of a flexible material and is about 75 cm in length forming a flexible connection between the water main and water service pipe is called

Options :

1. ✘ Water pipes
2. ✘ Ferrule
3. ✔ Goose neck
4. ✘ Pipe joint

Question Number : 37 Question Id : 170527437 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following gases is composed predominantly in the sludge digestion tank?

Options :

1. ✘ Hydrogen Sulphide
2. ✔ Methane
3. ✘ Carbon dioxide
4. ✘ Nitrogen

Question Number : 38 Question Id : 170527438 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Self-purification of running streams may be due to

Options :

1. ✘ Sedimentation, oxidation and coagulation
2. ✔ Dilution, sedimentation, and oxidation
3. ✘ Dilution, sedimentation, and coagulation
4. ✘ Dilution, oxidation, and coagulation

Question Number : 39 Question Id : 170527439 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

If the moisture content of the sludge is reduced from 98% to 96%, the volume of sludge will decrease by

Options :

1. ✘ 2%
2. ✘ 20%
3. ✘ 25%
4. ✔ 50%

Question Number : 40 Question Id : 170527440 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

B.O.D of water is zero means

Options :

1. ✘ no oxygen is required but organic matter is present
2. ✘ no organic matter is present but oxygen is required
3. ✘ both oxygen and organic matter are present
4. ✔ no oxygen is required and no organic matter is present

Question Number : 41 Question Id : 170527441 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

In the construction of Rapid sand filter, the uniformity coefficient of sand filter media generally ranges between

Options :

1. ✘ 4 to 6
2. ✘ 2 to 3
3. ✘ 1 to 1.2
4. ✔ 1.3 to 1.7

Question Number : 42 Question Id : 170527442 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

Best method for disposal of biomedical waste is

Options :

1. ✘ Engineered Landfill
2. ✘ Composting
3. ✔ Incineration
4. ✘ Shredding

Question Number : 43 Question Id : 170527443 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

Sanitary Landfills produce

- (i) Ash
- (ii) Leachate
- (iii) Methane
- (iv) Carbondioxide
- (v) Humus

Choose the correct option

Options :

1. ✘ (i), (ii), (iii), (v)

2. ✔ (ii), (iii), (iv)

3. ✘ (i), (ii), (iii), (iv)

4. ✘ (ii), (iii), (iv), (v)

Question Number : 44 Question Id : 170527444 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following chemical compounds cause acid rain?

Options :

1. ✘ Ozone and Hydrogen oxide

2. ✔ Sulfur dioxide and Nitrogen oxides

3. ✘ Hydrogen oxide and Carbon monoxide

4. ✘ Ferric chloride and sodium chloride

Question Number : 45 Question Id : 170527445 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

An air parcel having 40° temperature moves from ground level to 500 m elevation in dry air following the “adiabatic lapse rate”. The resulting temperature of air parcel at 500 m elevation will be nearly

Options :

1. ✘ 44° C

2. ✘ 41° C

3. ✔ 35° C

4. ✘ 38° C

Question Number : 46 Question Id : 170527446 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

If the drainage condition of a soil sample in the consolidometer is changed from one way drainage to two-way drainage, then

Options :

1. ✘ Coefficient of consolidation increases and Compression index decreases
2. ✘ Coefficient of consolidation decreases and Compression index increases
3. ✘ Coefficient of consolidation increases and Compression index remains constant
4. ✔ Coefficient of consolidation decreases and Compression index remains constant

Question Number : 47 Question Id : 170527447 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The vertical stress in soil at a depth z exactly below the line of action of an applied point load Q , as per the Boussinesq's theory is

Options :

1. ✘ $47.7 \frac{Q}{z^2}$
2. ✘ $4.77 \frac{Q}{z^2}$
3. ✘ $0.0477 \frac{Q}{z^2}$
4. ✔ $0.477 \frac{Q}{z^2}$

Question Number : 48 Question Id : 170527448 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Match the following

TEST	SOIL TYPE
(A) Direct shear test	i. Clay soils
(B) Triaxial shear test	ii. Sandy soils
(C) Unconfined compression test	iii. Soft soils
(D) Vane shear test	iv. All types of soils
	v. Red soils

Correct Options are:

Options :

1. ✘ A-ii, B-iii, C-i, D-iv
2. ✔ A-ii, B-iv, C-i, D-iii
3. ✘ A-v, B-iv, C-i, D-iii
4. ✘ A-v, B-ii, C-iii, D-iv

Question Number : 49 Question Id : 170527449 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Tests on a soil gave the following results:

Liquid limit=45%

Plastic Limit= 30%

Gravel=35%

Sand= 40%

Silt= 17%

Clay= 8%

Classify the soil as per I.S. Classification

Options :

1. ✘ CI
2. ✘ MI
3. ✘ SC
4. ✔ SM

Question Number : 50 Question Id : 170527450 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Assertion(A): Permeability of a soil decreases with increase in its unit weight of soil

Reasoning(R): With increase in fineness of particles in soil, unit weight of soil decreases

Choose the correct answer from the following

Options :

1. ✘ Both (A) and (R) are true, (R) is the correct explanation of (A)
2. ✔ Both (A) and (R) are true, (R) is not the correct explanation of (A)
3. ✘ (A) is true but, (R) is false
4. ✘ (A) is false but, (R) is true

Question Number : 51 Question Id : 170527451 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

A sandy stratum of 3.5m thick with specific gravity of 2.7 and void ratio of 0.7 is existing on the downstream of a reservoir. The hydraulic head (in m) from the following, that causes quick sand condition is

Options :

1. ✘ 1.0
2. ✘ 2.0
3. ✘ 3.0
4. ✔ 4.0

Question Number : 52 Question Id : 170527452 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Assertion(A): Falling head permeability test is suitable for fine grained soils

Reasoning(R): In fine grained soils, it is difficult to maintain head constant due to
low permeability

Choose the correct answer from the following

Options :

1. ✔ Both (A) and (R) are true, (R) is the correct explanation of (A)
2. ✘ Both (A) and (R) are true, (R) is not the correct explanation of (A)

3. ✘ (A) is true but, (R) is false

4. ✘ (A) is false but, (R) is true

Question Number : 53 Question Id : 170527453 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Maximum depth of tension crack in pure clayey backfill soil with cohesion of 60 kN/m^2 and unit weight of 15 kN/m^3 is

Options :

1. ✘ 1 m

2. ✘ 4 m

3. ✔ 8 m

4. ✘ 16 m

Question Number : 54 Question Id : 170527454 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

A 1.5 m wide strip footing is resting at a depth of 1.0 m in pure clayey stratum having unit weight of 15 kN/m^3 and cohesion of 100 kN/m^2 . Determine the net ultimate bearing capacity of the soil, if the factor of safety is 3.0. Use Terzaghi's theory.

Options :

1. ✘ 190 kN/m^2

2. ✘ 240 kN/m^2

3. ✔ 570 kN/m^2

4. ✘ 720 kN/m^2

Question Number : 55 Question Id : 170527455 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

As per IS:2911(part 4)-1985, the safe load on a single pile for the initial test corresponding to a 12 mm settlement is

Options :

1. ✘ $\frac{1}{3}$ of final load

2. ✔ $\frac{2}{3}$ of final load

3. ✘ $\frac{3}{4}$ of final load

4. ✘ $\frac{1}{2}$ of final load

Question Number : 56 Question Id : 170527456 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

The type of failure that can be expected for an infinite slope is

Options :

1. ✘ Slope failure

2. ✘ Base failure

3. ✘ Toe failure

4. ✔ Transitional failure

Question Number : 57 Question Id : 170527457 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

Choose the ground improvement techniques suitable for saturated clay soils from the following techniques

- (i) Preloading
- (ii) Vertical drains with surcharge load
- (iii) Dynamic compaction
- (iv) Vacuum consolidation
- (v) Vibro compaction

Options :

1. ✔ (i), (ii) and (iv) only

2. ✘ (i), (iii), (iv) and (v) only

3. ✘ (ii), (iii) and (iv) only

4. ✘ (iii) and (iv) only

Question Number : 58 Question Id : 170527458 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Match the following ground improvement techniques and their suitability

LIST-I		LIST-II	
A	Electro-Osmosis	i	Sandy soils at deeper depths
B	Vibro compaction	ii	Soft clayey soils
C	Tampers	iii	Sandy soils upto a shallow depth
D	Vibrators	iv	c- ϕ Soil upto shallow depth
		v	Hard clay upto deeper depth

Correct matching answers are:

Options :

1. ✘ A-ii, B-i, C-v, D-iv

2. ✔ A-ii, B-i, C-iv, D-iii

3. ✘ A-i, B-ii, C-iv, D-iii

4. ✘ A-i, B-ii, C-iii, D-iv

Question Number : 59 Question Id : 170527459 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The magnetic bearing of a line and declination recorded at the time of surveying were $130^{\circ} 30'$ and $2^{\circ} 20' E$ respectively. Determine the magnetic bearing to which this line has to be set now, if the present declination is $1^{\circ} 10' W$.

Options :

1. ✘ $127^{\circ} 00'$

2. ✘ $129^{\circ} 10'$

3. ✘ $131^{\circ} 40'$

4. ✔ $134^{\circ} 00'$

Question Number : 60 Question Id : 170527460 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

A tacheometer fitted with analytic lens is used to find the distance between P and Q. The stadia intercept (S) observed with telescope horizontal from instrument station A to P and A to Q are 0.3 and 0.4 respectively. The horizontal angle PAQ is observed to be 90° . The distance between P and Q is

Options :

1. ✘ 30 m
2. ✘ 40 m
3. ✔ 50 m
4. ✘ 70 m

Question Number : 61 Question Id : 170527461 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Assertion(A): In Levelling, location of staff station is important but not the instrument station.

Reasoning(R): Reduced level of a staff stations are determined based on the difference in levels of staff stations.

Choose the correct answer from the following

Options :

1. ✔ Both (A) and (R) are true, (R) is the correct explanation of (A)
2. ✘ Both (A) and (R) are true, (R) is not the correct explanation of (A)
3. ✘ (A) is true but, (R) is false
4. ✘ (A) is false but, (R) is true

Question Number : 62 Question Id : 170527462 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The radius of curve 'R' of 20 m chord length is (where D is degree of the curve)

Options :

1. ✘ $\frac{573}{D}$

2. ✘ $\frac{1046}{D}$

3. ✘ $\frac{586}{D}$

4. ✔ $\frac{1146}{D}$

Question Number : 63 Question Id : 170527463 Question Type : MCQ Option Shuffling : Yes
 Correct Marks : 1 Wrong Marks : 0

Match the following

LIST-I		LIST-II	
A	Theodolite	i	Bearings
B	Compass	ii	Angles
C	GPS	iii	Distances
D	Total Station	iv	Coordinates
		v	Latitudes and Departures

Correct answer is

Options :

1. ✔ A-ii, B-i, C-v, D-iv

2. ✘ A-ii, B-i, C-iv, D-v

3. ✘ A-i, B-ii, C-iv, D-iii

4. ✘ A-i, B-ii, C-iii, D-iv

Question Number : 64 Question Id : 170527464 Question Type : MCQ Option Shuffling : Yes
 Correct Marks : 1 Wrong Marks : 0

The most efficient traffic signal system is

Options :

1. ✔ flexible progressive system

2. ✘ alternate system
3. ✘ simultaneous system
4. ✘ simple progressive system

Question Number : 65 Question Id : 170527465 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

Allowable speed (approximately) of a vehicle (in kmph) on a horizontal curve of radius 336 m without super elevation is (Take Coefficient of friction as 0.15).

Options :

1. ✘ 21
2. ✘ 55
3. ✘ 65
4. ✔ 80

Question Number : 66 Question Id : 170527466 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

An expansion joint in a rigid pavement is provided to

Options :

1. ✔ allow free expansion
2. ✘ reduce shrinkage stresses
3. ✘ offer resistance to expansion
4. ✘ reduce warping stresses

Question Number : 67 Question Id : 170527467 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

Arrange the components of the flexible pavements in the order of construction

- (i) Sub-base course
- (ii) Base course
- (iii) Sub-grade
- (iv) Wearing course

Correct order is

Options :

- 1. ✘ i, ii, iii, iv
- 2. ✔ iii, i, ii, iv
- 3. ✘ iv, ii, i, iii
- 4. ✘ iii, ii, i, iv

Question Number : 68 Question Id : 170527468 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Match the following tests related to the material used for construction of road

LIST-I		LIST-II	
A	Los Angles test	i	Resistance against impact
B	Toughness test	ii	Resistance to weathering
C	Penetration test	iii	Resistance to abrasion
D	Soundness test	iv	Hardness or Softness of bitumen

Correct answer is

Options :

- 1. ✘ A-ii, B-iii, C-i, D-iv
- 2. ✘ A-ii, B-i, C-iv, D-iii
- 3. ✔ A-iii, B-i, C-iv, D-ii
- 4. ✘ A-iii, B-iv, C-ii, D-i

Question Number : 69 Question Id : 170527469 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

In a steel plate with bolted connection, the rupture of the net section is a mode of failure under

Options :

1. ✓ Tension
2. ✗ Compression
3. ✗ Flexure
4. ✗ Shear

Question Number : 70 Question Id : 170527470 Question Type : MCQ Option Shuffling : Yes 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 : 71 Question Id : 170527471 Question Type : MCQ Option Shuffling : Yes 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 : 72 Question Id : 170527472 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

When designing steel structures, one must ensure that local buckling in webs does not take place. This check may not be very critical when using rolled steel sections because

Options :

1. ✘ Quality control at the time of manufacture of rolled sections is very good
2. ✘ Web depths available are small
3. ✘ Web stiffeners are in built in rolled sections
4. ✔ Depth to thickness ratio (of the web) are appropriately adjusted

Question Number : 73 Question Id : 170527473 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

The flexural strength of M25 concrete as per IS: 456-2000 is

Options :

1. ✔ 3.50 MPa
2. ✘ 5.47 MPa
3. ✘ 15.23 MPa
4. ✘ 30.0 MPa

Question Number : 74 Question Id : 170527474 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

The critical section for one way shear in an isolated square footing having effective depth 'd' is

Options :

1. ✘ at the centre of the column
2. ✘ at a distance $2d$ from face of the column
3. ✘ at a distance $0.5d$ from face of the column
4. ✔ at a distance d from face of the column

Question Number : 75 Question Id : 170527475 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

As per the IS 456-2000, the minimum diameter of longitudinal reinforced bar in a column is

Options :

1. ✘ 6 mm
2. ✘ 8 mm
3. ✔ 12 mm
4. ✘ 16 mm

Question Number : 76 Question Id : 170527476 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

As per the IS 456-2000, the percentage of minimum mild steel reinforcement of the total cross-sectional area in slabs, is

Options :

1. ✘ 0.10 %
2. ✘ 0.12 %
3. ✔ 0.15 %
4. ✘ 0.18 %

Question Number : 77 Question Id : 170527477 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Water for a hydroelectric station is obtained from a reservoir with a head of 100 m.

The electrical energy generated in kW for unit cumecs water flow with the overall efficiency of 0.8 is

Options :

1. ✘ 775
2. ✘ 77.5
3. ✔ 785
4. ✘ 78.5

Question Number : 78 Question Id : 170527478 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

In a medium or high head hydroelectric power station a surge tank is provided to

Options :

1. ✘ Reduce the length of the penstock pipes
2. ✘ Augment water at the forebay
3. ✔ Control the pressure variations in the penstock pipes due to sudden load changes
4. ✘ Control the Water flow through the turbine

Question Number : 79 Question Id : 170527479 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

A power generating station has the following daily load cycle:

Time (Hours)	0 – 6	6 – 10	10 – 12	12 – 16	16 – 20	20 – 24
Load (MW)	40	50	60	50	70	40

The load factor is nearly

Options :

1. ✔ 71%
2. ✘ 81%
3. ✘ 65%
4. ✘ 75%

Question Number : 80 Question Id : 170527480 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

The air pollution generated from the steam thermal power plant due to coal combustion is reduced by incorporating

Options :

1. ✘ Forced and Induced fans
2. ✔ Electro Static Precipitator

3. ✖ Economizer

4. ✖ Super heater

Section B

Section Id :	17052710
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	20
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	17052710
Question Shuffling Allowed :	Yes

Question Number : 81 Question Id : 170527481 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

An article was sold at 15% gain. Had it been sold for Rs. 250 more, the gain would have been 20%. Then its original selling price is

Options :

1. ✖ Rs. 5000

2. ✖ Rs. 5500

3. ✔ Rs. 5750

4. ✖ Rs. 5250

Question Number : 82 Question Id : 170527482 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

The greatest possible length of a straight stick that can be placed inside a given cubic box is $7\sqrt{3}$ inches. The surface area of the largest possible sphere that fits within this box is (in sq. inches)

Options :

1. ✖ 308

2. ✔ 154

3. ✖ 77

4. ✖ 231

Question Number : 83 Question Id : 170527483 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

In a certain code language 'CODING is coded as 'DRIPWR then in the same language which word would be coded as 'YWUSQO'

Options :

1. ✖ DHLPTX

2. ✖ XTPMJE

3. ✖ YUQLHD

4. ✔ XTPLHD

Question Number : 84 Question Id : 170527484 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

DE : 10 :: HI : _____?

Options :

1. ✖ 17

2. ✖ 20

3. ✔ 36

4. ✖ 46

Question Number : 85 Question Id : 170527485 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

Most ductile metal among the following metals is

Options :

1. ✓ Gold

2. ✗ Silver

3. ✗ Copper

4. ✗ Iron

Question Number : 86 Question Id : 170527486 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Who gave the slogan 'Quit India' during India independence movement?

Options :

1. ✗ Mahatma Gandhi

2. ✗ Sardar Vallabhai Patel

3. ✗ Subhash Chandra Bose

4. ✓ Yusuf Mehen Ali

Question Number : 87 Question Id : 170527487 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The recent Malaviya Mission of UGC is aiming at

Options :

1. ✗ Strengthening Infrastructure of Higher Educational Institutions

2. ✗ Providing Sufficient Funds to HEI's

3. ✓ Enhancing Teaching Quality by Teacher Training Programme

4. ✗ Enhancing Quality in Primary Education.

Question Number : 88 Question Id : 170527488 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Parbati Barua won Padmashri Award in the year 2024 being

Options :

1. ✓ The India's first female elephant mahout
2. ✗ The renowned tribal environmentalist
3. ✗ The chakma loom shawl weaver
4. ✗ The Bhadu folk singer

Question Number : 89 Question Id : 170527489 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

Fill in the blank in the given sentence by choosing appropriate word from the alternatives:

They won the elections with more number of seats. It was definitely a _____ victory.

Options :

1. ✗ dehydrated
2. ✗ devious
3. ✓ decisive
4. ✗ deceive

Question Number : 90 Question Id : 170527490 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

Choose the *passive voice* of the following sentence from the options:

Who painted the wall?

Options :

1. ✗ By whom was the wall been painted?
2. ✓ By whom was the wall painted?
3. ✗ By whom the wall was painted?
4. ✗ By whom is the wall been painted?

Question Number : 91 Question Id : 170527491 Question Type : MCQ Option Shuffling : Yes Correct Marks : 1 Wrong Marks : 0

Fill in the blank with suitable form of the verb:

Anita _____ a novel since 2022.

Options :

1. ✘ has written
2. ✔ has been writing
3. ✘ wrote
4. ✘ had been writing

Question Number : 92 Question Id : 170527492 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the grammatically correct sentence from the following sentences.

Options :

1. ✘ Sony's score was similar to Samuel.
2. ✘ Where you are staying?
3. ✘ She will come if you will call her.
4. ✔ The match will resume after it stops raining.

Question Number : 93 Question Id : 170527493 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Khila Shapura fort was built by

Options :

1. ✘ Quli Qutub Shah
2. ✘ Dawood Khan Panni
3. ✘ Dulfir Khan
4. ✔ Sarvai Papanna

Question Number : 94 Question Id : 170527494 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Who is the renowned Telangana artist known for his pioneering work in the Cherial Scroll painting style?

Options :

1. ✘ Surya Prakash
2. ✔ Thota Vaikuntam
3. ✘ Laxma Goud
4. ✘ P. S. Ramakrishna

Question Number : 95 Question Id : 170527495 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The traditional art form of Telangana, which involves storytelling through puppetry, is called:

Options :

1. ✘ Burrakatha
2. ✔ Tholu Bommalata
3. ✘ Yakshagana
4. ✘ Kathakali

Question Number : 96 Question Id : 170527496 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Author and poet Mercy Margaret won the 2017 Sahitya Akademi Yuva Puraskar for the book

Options :

1. ✘ Maatala Mantalu
2. ✔ Maatala Madugu
3. ✘ Maatalu Muchatlu
4. ✘ Maata Muchata

Question Number : 97 Question Id : 170527497 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The intersection of a column and a row in a worksheet is called

Options :

1. ✘ Value
2. ✘ Address
3. ✘ Intersection
4. ✔ Cell

Question Number : 98 Question Id : 170527498 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The command used to delete some text or objects from a document and place it in the clipboard for later use is:

Options :

1. ✘ Delete
2. ✘ Chop
3. ✔ Cut
4. ✘ Remove

Question Number : 99 Question Id : 170527499 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following will start the slide show from the current slide in PowerPoint?

Options :

1. ✘ F5
2. ✔ Shift+F5
3. ✘ Ctrl+F5
4. ✘ Only available through Menu

Question Number : 100 Question Id : 170527500 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

What menu is selected to perform cut, copy and paste?

Options :

1. ✘ File
2. ✔ Edit
3. ✘ Tools
4. ✘ Table