

Notations :

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

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Eraser Required?:	No
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Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 184242901 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3 Option Orientation : Vertical Correct Marks : 2 Wrong Marks : 0.66

What was/is the standard length (in ft.) of Gutner's chain and in how many parts was/is it sub-divided?

Options :

1. ✓ 66, 100

2. ✖ 60, 100

3. ✖ 66, 50

Question Number : 2 Question Id : 184242902 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The lines passing through points of zero declination are said to be:

Options :

1. ✖ Isogonic lines

2. ✔ Agonic lines

3. ✖ Isometric lines

4. ✖ Isochronous lines

Question Number : 3 Question Id : 184242903 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Sanjeev wants to do levelling measurements for a river tributary, wherein he is finding it impossible to balance backsight and foresight distances. He only has access to a simple level. Which of the following methods of levelling would you recommend?

Options :

1. ✖ Benchmark levelling

2. ✖ Reverse levelling

3. ✔ Reciprocal levelling

4. ✖ Cross-section levelling

Question Number : 4 Question Id : 184242904 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Why does the vertical angle measured using a Theodolite will NOT pass through the station mark and the measured horizontal angle will be in error?

Options :

1. ✓

If the theodolite is not correctly centered over the ground station mark at which the horizontal angles are to be measured

2. ✗ If the ambient temperature is above 45°C

3. ✗ If the pegs are of differential lengths

4. ✗ If ambient temperature is 20°C

Question Number : 5 Question Id : 184242905 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A point temporarily used to transfer an elevation is called:

Options :

1. ✗ Benchmark

2. ✓ Turning point

3. ✗ Temporary benchmark

4. ✗ Foresight

Question Number : 6 Question Id : 184242906 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

One nautical mile equals:

Options :

1. ✗ 1.732 km

2. ✖ 1.781 km

3. ✔ 1.852 km

4. ✖ 1.897 km

Question Number : 7 Question Id : 184242907 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If l is the length of the line, then according to Bowditch's method, the linear and angular errors are proportional to _____.

Options :

1. ✖ l & $1/l$ 2. ✔ $l^{0.5}$ & $1/(l^{0.5})$ 3. ✖ $l^{0.67}$ & $1/(l^{0.67})$ 4. ✖ l^2 & $1/(l^2)$

Question Number : 8 Question Id : 184242908 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The angle subtended at the center of the earth north by the arc of meridian intercepted between the place and the equator is called _____ of a place.

Options :

1. ✔ Latitude

2. ✖ Longitude

3. ✖ Co-longitude

Question Number : 9 Question Id : 184242909 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following methods of contour interpolation is very crude and used for very small-scale works?

Options :

1. ✖ Graphical method

2. ✖ Arithmetical calculation

3. ✖ Conveniently taking tracing cloth and dividing it into desired intervals

4. ✔ Estimation

Question Number : 10 Question Id : 184242910 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The sensitivity of a level tube is expressed in terms of:

Options :

1. ✖ the ground level where the levelling instrument is placed

2. ✖ angle in seconds subtended with respect to the meridian

3. ✖ the perpendicularity of horizontal plate with the instrument

4. ✔ angle in seconds subtended at the centre by the arc of one division length of the level tube

Question Number : 11 Question Id : 184242911 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is a **WRONGLY** stated application of triangulation survey?

Options :

2. ✗ Determining accurate locations for setting out of civil engineering works

3. ✗ Establishing accurate control for photogrammetric surveys for large areas

4. ✗ Establishing accurate control for plane and geodetic surveys covering large areas

Question Number : 12 Question Id : 184242912 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If the focal length of a camera is 20 cm and the map distance is 10 cm representing a ground distance of 200 m, then what is the height of the camera above the selected data?

Options :

1. ✗ 380 m

2. ✗ 395 m

3. ✓ 400 m

4. ✗ 420 m

Question Number : 13 Question Id : 184242913 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following instruments is used either to enlarge or to reduce a plan already drawn?

Options :

1. ✓ Eidograph

2. ✗ Box sextant

4. ✖ Mining dial

Question Number : 14 Question Id : 184242914 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT a usually used method for orienting a plain table?

Options :

1. ✖ Orientation with a trough compass

2. ✖ Orientation by three point problem

3. ✔ Orientation by five point problem

4. ✖ Orientation by backsighting

Question Number : 15 Question Id : 184242915 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT an indirect method of contouring?

Options :

1. ✖ Radial line method

2. ✖ Cross-section method

3. ✔ Hand level method

4. ✖ Grid method

Question Number : 16 Question Id : 184242916 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The length of a line, originally 100 mm long on a map plotted to a scale of 1/1000, was found to be 95 mm due to shrinkage of the map. The map prepared using a tape of length 20 m was later found to be actually 21 m. If a certain area on the map, measured using a planimeter, is 100 mm², determine the correct area on the ground (in m²):

Options :

1. ✖ 244.3

2. ✖ 183.2

3. ✖ 152.7

4. ✔ 122.2

Question Number : 17 Question Id : 184242917 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Calculate the earthwork (cum) required to fill a trapezoidal cross-section that has breadth of formation as 20 m, center height as 4 m and side slopes as 1 vertical to 2 horizontal. The length of this section is 2 km:

Options :

1. ✖ 168000

2. ✔ 224000

3. ✖ 246400

4. ✖ 268800

Question Number : 18 Question Id : 184242918 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT a typical principal used in electromagnetic distance measurement (EDM) equipment used for surveying?

Options :

1. ✖ Light waves

3. ✔ Supersonic waves

4. ✖ Micro waves

Question Number : 19 Question Id : 184242919 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The drag that permeating water exerts in the upward direction, which in-turn tends to oppose the force of gravity and when water flows upward under the critical hydraulic gradient, it completely neutralizes the force on account of weight of particles, and thus leaves the particles suspended in water. Soil in such a state does not behave like soil but like a very viscous liquid popularly known as:

Options :

1. ✔ Quick sand

2. ✖ Bulking

3. ✖ Effervescence

4. ✖ Swelling

Question Number : 20 Question Id : 184242920 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

An engineer wanting to find suitable sand for embankment filling observes that a particular type of sand has a relative density of 0%. What can he conclude from this?

Options :

1. ✔ Sand is in its loosest state

2. ✖ Sand is in its densest state

3. ✖ Sand is in its intermediate state of compaction

4. ✖ This sand cannot be further compacted

Question Number : 21 Question Id : 184242921 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What would best describe the degree of saturation of the soil in which water exists in inter-connected lenses around particle contacts? Air exists in interconnected channels and both, air and water phases are continuous.

Options :

1. ✖ Very high saturation

2. ✖ High saturation

3. ✔ Medium saturation

4. ✖ Very low saturation

Question Number : 22 Question Id : 184242922 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Who proposed influence chart for vertical pressure distribution in soil?

Options :

1. ✖ Newman

2. ✔ Newmark

3. ✖ Skempton

4. ✖ Darcy

Question Number : 23 Question Id : 184242923 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

What can be said for soil in which the failure envelope for the total stress Mohr's circles becomes a horizontal line?

Options :

1. ✓ Angle of friction is zero
2. ✗ Angle of friction is greater than 15
3. ✗ Angle of friction is greater than 30
4. ✗ Angle of friction is greater than 45

Question Number : 24 Question Id : 184242924 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If the weight of a hammer is 10 kN and the height of drop is 2 m, then what is the theoretical input energy?

Options :

1. ✗ 5 kN-m
2. ✗ 10 kN-m
3. ✗ 15kN-m
4. ✓ 20 kN-m

Question Number : 25 Question Id : 184242925 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Darcy's law of water flow through soils is valid for:

Options :

1. ✗ only sands under laminar flow
2. ✗ only clays under laminar flow

4. ✗ all soils under turbulent flow

Question Number : 26 Question Id : 184242926 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A Geotechnical engineer tests a soil and find that its liquidity index is 1.2. Which of the following states is the soil in?

Options :

1. ✗ At Liquid limit

2. ✗ At plastic limit

3. ✓ In liquid state

4. ✗ In oven dry state

Question Number : 27 Question Id : 184242927 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In order to take a call for commencing construction, the project manager requests saturation tests to be conducted on a clay. If the volume of voids is found to be 55 volume units and the volume of water in the voids is found to be 49.5 volume units, what is the current saturation level of the soil?

Options :

1. ✗ 111%

2. ✓ 90%

3. ✗ 10%

4. ✗ 900%

Which of the following is a **WRONGLY** stated design criteria for machine foundations?

Options :

1. ✖ The settlements should be within prescribed limits.

2. ✖

The center of gravity of the machine should preferably lie in the same vertical line as the center of gravity of the foundation system.

3. ✔ There must be resonance.

4. ✖

The dynamic amplitudes of the machine-foundation-soil system must be within the prescribed limits under service conditions.

Question Number : 29 Question Id : 184242929 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

A lab technician estimated the voids ratio of a soil as 3. What will be the porosity of this soil?

Options :

1. ✖ 1.25

2. ✖ 1.00

3. ✔ 0.75

4. ✖ 0.33

Question Number : 30 Question Id : 184242930 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The Skempton's pore water pressure parameter for a normally consolidated clay ranges between:

Options :

2. ✖ 0 to 0.5

3. ✔ 0.5 to 1.0

4. ✖ 1.0 to 1.5

Question Number : 31 Question Id : 184242931 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT an advantage of well foundation?

Options :

1. ✖ It can resist scouring better.

2. ✖ Possible to ensure its resting on suitable bearing stratum of uniform nature

3. ✖ It can withstand large lateral loads.

4. ✔ Sinking of the well causes vibrations that are good for adjacent structures.

Question Number : 32 Question Id : 184242932 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

According to the Indian standard, the maximum settlement allowed for isolated foundation of a reinforced concrete structure constructed on plastic clay is limited to:

Options :

1. ✖ 25 mm

2. ✖ 50 mm

4. ✗ 100 mm

Question Number : 33 Question Id : 184242933 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT an advantage of driven concrete precast piles?

Options :

1. ✓ Quality of concrete is never ensured

2. ✗ Suitable for aggressive environment

3. ✗ High displacement piles

4. ✗ Suitable for underwater installations

Question Number : 34 Question Id : 184242934 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Which of the following compactors will typically provide maximum average output in clean sand and gravel for an average thickness in the range of 300-500 mm?

Options :

1. ✗ Static steel drum roller

2. ✓ Vibratory smooth drum roller

3. ✗ Sheepfoot roller

4. ✗ Pneumatic tyre roller

Question Number : 35 Question Id : 184242935 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

If a soil compactor runs at an efficiency factor of 0.8, has a drum width of 2 m, operates at 10 km/h speed and compacts a soil layer of 300 mm in 6 passes, what will be its output (cum/h)?

Options :

1. ✓ 800

2. ✗ 750

3. ✗ 680

4. ✗ 520

Question Number : 36 Question Id : 184242936 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A gravity retaining wall has an overturning moment of 200 kNm/m about the left hand bottom edge. If the resisting moment is 500, what is the factor of safety for overturning? Is it safe or unsafe for overturning only?

Options :

1. ✗ 2.5, unsafe

2. ✓ 2.5, safe

3. ✗ 0.4, unsafe

4. ✗ 1.5, safe

Question Number : 37 Question Id : 184242937 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In which of the following samplings is care taken to ensure that at least the composition of the soil as it exists in nature remains unaltered?

Options :

1. ✗ Undisturbed samples

3. ✗ Disturbed non-representative samples

4. ✗ Intact samples

Question Number : 38 Question Id : 184242938 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT a soil classification system employed in pavements?

Options :

1. ✗ Burmister's descriptive system

2. ✗ Civil Aeronautics administration system

3. ✗ Casagrande soil classification

4. ✓ US department of agriculture system

Question Number : 39 Question Id : 184242939 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

As per Indian standard, the diameter (mm) and height (mm) of a CBR mould should be:

Options :

1. ✗ 150, 150

2. ✓ 150, 175

3. ✗ 175, 150

Question Number : 40 Question Id : 184242940 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The zero mile stone in India is located at:

Options :

1. ✖ Patna

2. ✖ Chhindwara

3. ✖ Seoni

4. ✔ Nagpur

Question Number : 41 Question Id : 184242941 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

According to the Indian standard, which of the following Bitumen is suitable for 7-day average maximum air temperature of 46°C:

Options :

1. ✖ VG10

2. ✖ VG20

3. ✖ VG30

4. ✔ VG40

Question Number : 42 Question Id : 184242942 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which distress is caused by the consolidation of one or more layer of flexible pavement?

Options :

2. ✖ Alligator formation

3. ✔ Rut

4. ✖ Shrinkage cracking

Question Number : 43 Question Id : 184242943 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT a common type of culvert?

Options :

1. ✖ Slab

2. ✖ Pipe

3. ✔ Hyperbolic

4. ✖ Arch

Question Number : 44 Question Id : 184242944 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If a 7 m wide Bituminous road is to be constructed with a cross fall of 1 in 33, then what will be the rise of crown with regard to the edges?

Options :

1. ✔ 0.11

2. ✖ 0.21

4. ✖ 4.71

Question Number : 45 Question Id : 184242945 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If overtaking sight distance is 250 m, then what is the desirable length (km) of the overtaking zone?

Options :

1. ✖ 0.75

2. ✖ 1

3. ✔ 1.25

4. ✖ 1.5

Question Number : 46 Question Id : 184242946 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If R is the radius of the circular curve (in m), then the maximum grade compensation recommended is:

Options :

1. ✖ $50/R$ 2. ✔ $75/R$ 3. ✖ $100/R$ 4. ✖ $125/R$

Question Number : 47 Question Id : 184242947 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What is the tentative capacity (Capacity PCU per day, both directions) of a single lane rural road with 3.75 m wide carriageway and normal earthen shoulders?

Options :

- 1. ✖ 500
- 2. ✔ 1000
- 3. ✖ 2500
- 4. ✖ 5000

Question Number : 48 Question Id : 184242948 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If the pressure on the plunger at 2.5 mm penetration of soil is 14 units, while the corresponding pressure at 2.5 mm for standard crushed stone is 70 units, then the CBR value (%) at 2.5 mm will be:

Options :

- 1. ✖ 50
- 2. ✔ 20
- 3. ✖ 70
- 4. ✖ 80

Question Number : 49 Question Id : 184242949 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For a broad gauge (BG) in India, what is the maximum height of rolling stock?

Options :

- 1. ✖ 2.745 m

3. ✖ 3.45 m

4. ✔ 4.14 m

Question Number : 50 Question Id : 184242950 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In case of mountain alignment of railway track, in order to remain within the ruling gradient the length of the railway line is increased artificially by the development process. Of the following, which is NOT one such development technique?

Options :

1. ✖ Zigzag line method

2. ✖ Switch line method

3. ✖ Complete loop method

4. ✔ Winkler's method

Question Number : 51 Question Id : 184242951 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In case of cuttings in good soils, road bed should be given a cross slope of at least 1 in ____ from the centre towards the drains on either side.

Options :

1. ✖ 5

2. ✖ 10

3. ✖ 15

Question Number : 52 Question Id : 184242952 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If a vertical summit curve is formed at the intersection of two gradients $+2.5\%$ and -3% , what is the deviation angle (N)?

Options :

1. ✗ 0.5

2. ✗ 1.5

3. ✗ 4.5

4. ✓ 5.5

Question Number : 53 Question Id : 184242953 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

An automotive company designs a truck with a wheelbase of 8 m. What is the off tracking (m) while negotiating a curved path with a mean radius of 32 m?

Options :

1. ✗ 0.125

2. ✗ 0.25

3. ✗ 0.625

4. ✓ 1

Question Number : 54 Question Id : 184242954 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A multi-lane stream operates at a speed of 40 km/h in a traffic lane. If the average center to center spacing of the vehicles is 15 m, when the vehicles follow one behind the other as a queue, then the theoretical capacity of the single lane (number of vehicles per hour) is:

Options :

1. ✖ 178

2. ✖ 25

3. ✔ 2667

4. ✖ 2780

Question Number : 55 Question Id : 184242955 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If the average spacing between vehicles under stopped condition is 5 m and the free mean speed on a roadway is 75 km/h, then what are the values of jam density (vehicles/km/lane) and maximum flow (vehicles/h/lane) respectively?

Options :

1. ✔ 200, 3750

2. ✖ 200, 3000

3. ✖ 250, 3000

4. ✖ 250, 3750

Question Number : 56 Question Id : 184242956 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If the thickness of sub-base for a specific group index is 15 cm and the combined thickness of surface, base and sub-base course is 450 mm, what is the thickness (mm) of the base and surfacing?

Options :

1. ✖ 30

3. ✗ 400

4. ✗ 40

Question Number : 57 Question Id : 184242957 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A substance's thermodynamic propensity to escape from one environmental compartment to another is termed as:

Options :

1. ✗ Escape velocity

2. ✓ Fugacity

3. ✗ Dispersion coefficient

4. ✗ Dissolving ratio

Question Number : 58 Question Id : 184242958 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In the language of air pollution, which of the following is NOT a technique for controlling odour?

Options :

1. ✗ Dilution

2. ✗ Removal

3. ✗ Conversion

4. ✓ Amplification

Question Number : 59 Question Id : 184242959 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The ratio of the volume of water that can be drained off by gravity to the total volume of soil after attaining the point of saturation is called:

Options :

1. ✓ Specific yield

2. ✗ Specific capacity

3. ✗ Yield

4. ✗ Drawdown

Question Number : 60 Question Id : 184242960 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

According to Indian standard, the acceptable pH value of drinking water is:

Options :

1. ✗ < 6

2. ✗ 6.5 to 7

3. ✓ 6.5 to 8.5

4. ✗ > 8

Question Number : 61 Question Id : 184242961 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

During water purification, which of the following processes reduces the net electrical repulsive forces at particle surfaces by adding specific chemicals?

Options :

2. ✗ Agglomeration

3. ✗ Flocculation

4. ✗ Oxidation

Question Number : 62 Question Id : 184242962 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The biological oxygen demand is based on the assumption that the amount of organic material remaining at any time (t) is governed by:

Options :

1. ✓ first order function

2. ✗ second order function

3. ✗ third order function

4. ✗ fourth order function

Question Number : 63 Question Id : 184242963 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The number density of the gas divided by number density of all gases in dry air is termed as:

Options :

1. ✗ Domination ratio

2. ✗ Plank's constant

4. ✔ Mixing ratio

Question Number : 64 Question Id : 184242964 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT true?

Options :

1. ✔ Ground water plume flows in turbulent way

2. ✖ Air mass plume flows in turbulent way

3. ✖ Ground water plume is incompressible

4. ✖ Air mass plume is compressible

Question Number : 65 Question Id : 184242965 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a small town with a population of 10,000, if the per capita water demand is 100 l/d, then what is the yearly water consumption (in million litres)?

Options :

1. ✖ 91.3

2. ✖ 182.5

3. ✖ 243.3

4. ✔ 365.0

Question Number : 66 Question Id : 184242966 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Which of the following intake structures is INCORRECTLY paired?

Options :

1. ✖ Rectangular sump well – river intake
2. ✖ Submersible rectangular chamber – lake intake
3. ✖ Intake well on dam – reservoir intake
4. ✔ Intake well at the center of canal – canal intake

Question Number : 67 Question Id : 184242967 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT an advantage of chloramine-ammonia treatment of water?

Options :

1. ✔ It is less effective than chlorine alone
2. ✖ It prevents bad taste and odour
3. ✖ There is no danger of overdose
4. ✖

Quantity of chlorine required is reduced especially if organic matter is present in large amounts

Question Number : 68 Question Id : 184242968 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following treatments is especially applicable to the removal of tastes resulting from dissolved gases?

Options :

1. ✔ Activated carbon

3. ✖ Chloramine

4. ✖ Fluorine

Question Number : 69 Question Id : 184242969 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following reactions leads to the formation of volatile fatty acids?

Options :

1. ✖ Iron reduction

2. ✖ Aerobic oxidation

3. ✔ Acid fermentation

4. ✖ Anammox

Question Number : 70 Question Id : 184242970 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For which of the following minimum air quality index should people with lung disease (asthma) avoid long exertion?

Options :

1. ✖ 0 to 50

2. ✖ 51 to 100

3. ✔ 101 to 150

4. ✖ 151 to 200

Question Number : 71 Question Id : 184242971 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a wastewater treatment process, the biomass produced is 12,000 units, while the substrate consumed is 54,000 units. Estimate the biomass synthesis yield.

Options :

1. ✓ 0.22

2. ✗ 0.35

3. ✗ 0.45

4. ✗ 0.78

Question Number : 72 Question Id : 184242972 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The wastewater treatment engineer of a small town wants to dewater raw sludge. Which amongst the following options available to him should he practically NOT use?

Options :

1. ✗ Filtering

2. ✗ Drying using flat bed

3. ✓ Drying using a lagoon

4. ✗ Centrifugal action

Question Number : 73 Question Id : 184242973 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If the peak flow rate is 183 cum/d and long-term average flow rate is 100 cum/d, then what is the sustained peaking factor?

Options :

1. ✖ 0.45

2. ✖ 0.83

3. ✔ 1.83

4. ✖ 2.83

Question Number : 74 Question Id : 184242974 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If the detention time of 20 min is used for pre-aeration basin with grit removal for an average flow of 1000 lpm, then the net volume of basin (cum) required will be

Options :

1. ✖ 6.67

2. ✖ 10.00

3. ✔ 20.00

4. ✖ 24.42

Question Number : 75 Question Id : 184242975 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If specific capacity of a well is 3.5 cum/h/unit head and the cross-sectional area of the bottom of the well is 7 m², then the specific yield (cum/h/sq.m) and yield (cum/h) of the well at a constant depression head of 3 m will be respectively:

Options :

1. ✖ 0.33 and 3.33

2. ✖ 0.05 and 10.5

4. ✔ 0.5 and 10.5

Question Number : 76 Question Id : 184242976 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A simply supported beam with equal overhang on both sides carry Uniformly Distributed Load on entire length. What would be the percentage overhang on each side so that maximum bending moment is minimum?

Options :

1. ✖ 17.7%

2. ✔ 20.7%

3. ✖ 25.2%

4. ✖ 33.3%

Question Number : 77 Question Id : 184242977 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following theory gives best result for ductile materials?

Options :

1. ✖ Rankine's Theory

2. ✖ St. Venant's Theory

3. ✔ Mises - Henky Theory

4. ✖ Guest of Tresca's Theory

Question Number : 78 Question Id : 184242978 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Number of independent elastic constants for homogeneous and isotropic material is

Options :

1. ✓ 2

2. ✗ 6

3. ✗ 9

4. ✗ 21

Question Number : 79 Question Id : 184242979 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The Influence Line Diagram for bending moment for determinate structure is:

Options :

1. ✗ Curved

2. ✓ Linear

3. ✗ Combination of curved and linear

4. ✗ Irregular

Question Number : 80 Question Id : 184242980 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A circular bar of diameter 50 mm is subjected to pull of 50 kN. Take poisson's ratio = 0.33 and Young's Modulus of Elasticity = $7.07 \times 10^4 \text{ N/mm}^2$. Value of shear modulus is:

Options :

1. ✓ $2.65 \times 10^4 \text{ N/mm}^2$

2. ✖ $3.8 \times 10^4 \text{ N/mm}^2$

3. ✖ $6.93 \times 10^4 \text{ N/mm}^2$

4. ✖ $9.36 \times 10^4 \text{ N/mm}^2$

Question Number : 81 Question Id : 184242981 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If an area has any axis of symmetry then product of inertia will be:

Options :

1. ✔ Zero

2. ✖ Positive

3. ✖ Negative

4. ✖ Either positive or negative

Question Number : 82 Question Id : 184242982 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Slope deflection method is used when:

Options :

1. ✖ $D_k = D_s$

2. ✖ $D_k = 0, D_s = 0$

3. ✔ $D_k < D_s$

Question Number : 83 Question Id : 184242983 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For triangular section maximum shear stress occurs at:

Options :

1. ✖ Neutral axis

2. ✔ At $h/2$ from apex

3. ✖ At $h/3$ from apex

4. ✖ At $h/3$ from bottom

Question Number : 84 Question Id : 184242984 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Radial Shear (S_x) for three hinge arch is given by:

Options :

1. ✖ $R_A \cdot x - H_y$

2. ✔ $R_A \cos\theta - H \sin\theta$

3. ✖ $R_A \sin\theta + H \cos\theta$

4. ✖ $R_A \sin\theta - H \cos\theta$

Question Number : 85 Question Id : 184242985 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Degree of freedom available for space -rigid frame is:

Options :

1. ✖ 2

2. ✖ 3

3. ✖ 4

4. ✔ 6

Question Number : 86 Question Id : 184242986 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a plane strain problem in xy plane, the shear strain = 15×10^{-6} and the normal strain in x and y direction is zero.
For this strain, what is the diameter of the Mohr's circle of strain?

Options :

1. ✖ 5×10^{-6} 2. ✖ 7.5×10^{-6} 3. ✔ 15×10^{-6} 4. ✖ 30×10^{-6}

Question Number : 87 Question Id : 184242987 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

At 20°C, water has a vapour pressure of:

Options :

1. ✖ 10.3 KPa

2. ✖ 1 KPa

4. ✗ 760 KPa

Question Number : 88 Question Id : 184242988 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a geometrically similar model of a spill way the discharge per meter length is $0.4\text{m}^3/\text{s}$. If the scale of model is 1: 42. Find the discharge per meter run of prototype.

Options :

1. ✗ $10.87\text{m}^3/\text{sec}$ 2. ✗ $108.087\text{cm}^3/\text{sec}$ 3. ✓ $108.87\text{m}^3/\text{sec}$ 4. ✗ $1.087\text{m}^3/\text{sec}$

Question Number : 89 Question Id : 184242989 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What will be the value of convective acceleration and local acceleration for a flow of water in uniform straight pipe of constant diameter with unsteady flow condition?

Options :

1. ✗ Convective acceleration = 0, Local acceleration = 0

2. ✓ Convective acceleration = 0, Local acceleration $\neq 0$ 3. ✗ Convective acceleration $\neq 0$, Local acceleration $\neq 0$ 4. ✗ Convective acceleration $\neq 0$, Local acceleration = 0

Correct Marks : 2 Wrong Marks : 0.66

A pump is used to transfer water from sump to an over head reservoir has following H-Q characteristic

$H = 23 + 11Q + 110Q^2$. The system curve is given by $H = 25 + 90Q^2$. What is the shut-off head of the pump?

Options :

1. ✖ 25

2. ✔ 23

3. ✖ 0.229

4. ✖ 19.74

Question Number : 91 Question Id : 184242991 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The water is flowing in a pipe of cross sectional area 19.625 m^2 and perimeter 15.7 m. The hydraulic mean diameter is:

Options :

1. ✖ 4 m

2. ✔ 5 m

3. ✖ 6 m

4. ✖ 7 m

Question Number : 92 Question Id : 184242992 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What will be the compressibility of water if an increase of pressure by 20 MN/M^2 caused 1% reduction in the volume?

Options :

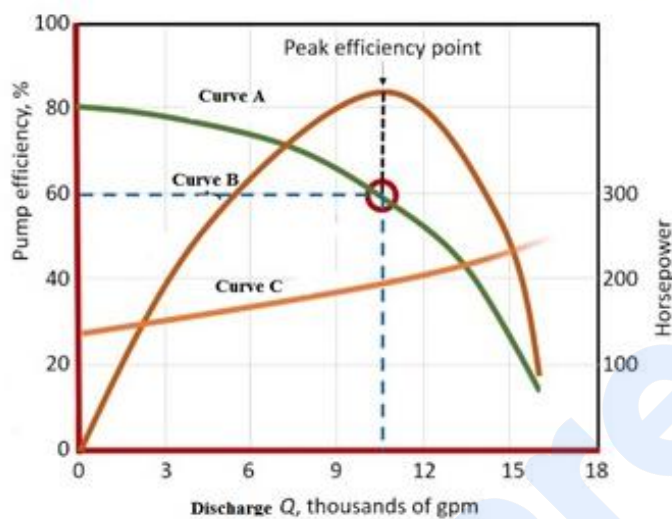
1. ✖ $2.5 \text{ cm}^2/\text{MN}$

3. ✗ 7.5 cm²/MN4. ✗ 10 cm²/MN

Question Number : 93 Question Id : 184242993 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Given figure shows the performance curve for a centrifugal pump at various flow. Curve A is for:



Options :

1. ✓ Head

2. ✗ Efficiency

3. ✗ Power input

4. ✗ Power output

Question Number : 94 Question Id : 184242994 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

www.prepp.in A rectangular deep channel has 5.0m width and 3.0m water depth. The velocity at different depth is given below.

Depth(m)	0	0.6	1.2	1.6	2.4
Velocity(m/s)	0	4	4.2	3.5	3

The average velocity of water is -

Options :

1. ✖ 4 m/s

2. ✖ 4.2 m/s

3. ✔ 3.5 m/s

4. ✖ 3 m/s

Question Number : 95 Question Id : 184242995 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

An Effluent stream is defined as:

Options :

1. ✖ A stream which contributes some flow to ground water discharge

2. ✖ A stream which always carry some flow

3. ✔ A stream which receives some flow from the ground water discharge

4. ✖ A stream which does not have any base flow contribution

Question Number : 96 Question Id : 184242996 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The peak of a flood hydrograph due to one hour storm in a catchment is $170\text{m}^3/\text{sec}$. The total depth of the runoff generated due to this storm is 50mm. Assume a constant of base flow of $20\text{m}^3/\text{sec}$. The peak discharge of 1hr unit hydrograph for this catchment is:

Options :

2. ✖ $3 \text{ m}^3/\text{sec}$ 3. ✔ $30 \text{ m}^3/\text{sec}$ 4. ✖ $3.4 \text{ m}^3/\text{sec}$

Question Number : 97 Question Id : 184242997 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

When the left support of a fixed beam rotates, the fixed end moment at right support is:

Options :

1. ✖ $3EI \theta_L / L$ 2. ✖ $4EI \theta_R / L$ 3. ✔ $2EI \theta_L / L$ 4. ✖ $3EI \theta_L / 2L$

Question Number : 98 Question Id : 184242998 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A statically indeterminate structure:

Options :

1. ✖ can be analysed using equations of compatibility only

2. ✔ can be analysed using equations of statics and compatibility equation

4. ✖ cannot be analysed at all

Question Number : 99 Question Id : 184242999 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A two span continuous beam ABC with end A fixed and end C hinged is having $AB = 4$ m and $BC = 6$ m, $I_{AB} : I_{BC} = 1 :$

2. It is subjected to udl (uniformly distributed load) of 10 kN/m over the entire right span. The moment at the end C is:

Options :

1. ✖ 25 kNm hogging

2. ✖ 11.25 kNm hogging

3. ✖ 11.25 kNm sagging

4. ✔ 0

Question Number : 100 Question Id : 1842421000 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A fixed beam having length l is propped at midway. It carries udl (uniformly distributed load) w/m extending from one fixing to centre prop. Calculate the prop reaction.

Options :

1. ✖ $WL/2$ 2. ✖ $WL/8$ 3. ✖ $3WL/4$ 4. ✔ $WL/4$

Correct Marks : 2 Wrong Marks : 0.66

The strain energy of a pin-jointed structure can be expressed as:

Options :

1. ✓ $\Sigma F^2 L / 2AE$

2. ✗ $\Sigma F^2 L / AE$

3. ✗ $\Sigma L^2 F / 2AE$

4. ✗ $\Sigma FL^2 / AE$

Question Number : 102 Question Id : 1842421002 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The Clapeyron's method formulates:

Options :

1. ✗ loading conditions

2. ✗ equilibrium conditions

3. ✗ moment conditions

4. ✓ compatibility conditions

Question Number : 103 Question Id : 1842421003 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The proof load of a leaf spring is:

Options :

1. ✗ deflection per unit load

3. ✗ load required to cause 2% permanent deflection

4. ✗ load per unit deflection

Question Number : 104 Question Id : 1842421004 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A water main of 180 cm diameter contains water at a pressure head of 300 m. The thickness of the metal shell required for water main, given that max permissible stressing metal is 600 kg/cm^2 , will be:

Options :

1. ✓ 4.5 cm

2. ✗ 3.5 cm

3. ✗ 2.5 cm

4. ✗ 1.5 cm

Question Number : 105 Question Id : 1842421005 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The Perry-Rebertson's formula considers:

Options :

1. ✗ crushing mode

2. ✗ initial curvature

3. ✓ initial eccentricity and curvature

Question Number : 106 Question Id : 1842421006 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

An allowable axial load 3 m long column with hinged ends is 30 kN. Another column of same material, same cross-section and same length — but one end fixed and other end hinged — suffers buckling. What is the buckling load for the column?

Options :

1. ✔ 60 kN

2. ✖ 30 kN

3. ✖ 300 kN

4. ✖ 600 kN

Question Number : 107 Question Id : 1842421007 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The maximum strain in tension reinforcement at the time of failure should not be less than:

Options :

1. ✖ $0.002 + (f_y/E_s)$

2. ✖ $f_y/1.15E_s$

3. ✔ $0.002 + (f_y / 1.15E_s)$

4. ✖ 0.0035

Question Number : 108 Question Id : 1842421008 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In case of a footing, the critical section for purchasing shear is considered at:

1. ✖ the face of the column
2. ✖ 'd' distance from the face of the column
3. ✔ 'd/2' distance from the face of the column
4. ✖ '2d' distance from the face of the column

Question Number : 109 Question Id : 1842421009 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

During earthquakes, the corner and edge columns may be subject to:

Options :

1. ✖ uniaxial bending
2. ✖ biaxial bending
3. ✖ combined biaxial bending and tension
4. ✔ combined biaxial bending and torsion

Question Number : 110 Question Id : 1842421010 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The minimum grade of concrete for pre-tensioned pre-stressing concrete member is:

Options :

1. ✖ M30
2. ✔ M40

4. ✖ M70

Question Number : 111 Question Id : 1842421011 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The limiting compressive strain of concrete in case of bending is:

Options :

1. ✖ 0.002

2. ✖ 0.0025

3. ✖ 0.003

4. ✔ 0.0035

Question Number : 112 Question Id : 1842421012 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

An axially loaded column is of $450 \times 450 \text{ mm}$ size. The effective length of the column is 5 m. What is the minimum eccentricity of the axial load for the column?

Options :

1. ✔ 25 mm

2. ✖ 16 mm

3. ✖ 20 mm

4. ✖ 30 mm

Question Number : 113 Question Id : 1842421013 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

The deflection of beams and one-way slabs can be controlled by using the appropriate:

Options :

1. ✗ modular ratio
2. ✗ water/cement ratio
3. ✗ aspect ratio
4. ✓ span/depth ratio

Question Number : 114 Question Id : 1842421014 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In case of a two-way slab, for positive moment reinforcement, 100% reinforcement must be provided up to a distance of _____ from the simply-supported edge.

Options :

1. ✗ 0.10L
2. ✓ 0.15L
3. ✗ 0.20L
4. ✗ 0.25L

Question Number : 115 Question Id : 1842421015 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The end or side covers for a steel bar in RCC work may be taken as: _____

Options :

1. ✗ 1.2 cm to 2 cm

3. ✔ 4 cm to 5 cm

4. ✖ 3 cm to 7 cm

Question Number : 116 Question Id : 1842421016 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A compression member has a centre-to-centre length of 5 m. It is fixed at one end & hinged at other end. The recommended effective length of the column is:

Options :

1. ✔ 4.0 m

2. ✖ 2.8 m

3. ✖ 3.2 m

4. ✖ 2.6 m

Question Number : 117 Question Id : 1842421017 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A section has the capacity to develop plastic hinge, but does not have the capacity to form collapse mechanism. Such a section is called:

Options :

1. ✖ plastic section

2. ✔ compact section

3. ✖ Semi-compact section

Question Number : 118 Question Id : 1842421018 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For an electrically-operated cranes up to 50 ton capacity, the maximum permissible deflection is given by:

Options :

1. ✖ Span/500

2. ✔ Span/750

3. ✖ Span/1000

4. ✖ Span/1250

Question Number : 119 Question Id : 1842421019 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

If the slope of the truss is 15° , the live load on truss is taken as:

Options :

1. ✖ 0.5

2. ✖ 0.55

3. ✖ 0.6

4. ✔ 0.65

Question Number : 120 Question Id : 1842421020 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

An ISMB 300 has section modulus value of $600 \times 10^3 \text{ mm}^3$, Plates of dimensions $200 \times 10 \text{ mm}$ are welded over an each flange of width 320mm. What is section modulus of the plated section?

Options :

1. ✖ $462 \times 10^3 \text{ mm}^3$

2. ✖ $550 \times 10^3 \text{ mm}^3$

3. ✖ $710 \times 10^3 \text{ mm}^3$

4. ✔ $1220 \times 10^3 \text{ mm}^3$

Question Number : 121 Question Id : 1842421021 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A 12mm thick plate is connected to 2, 6mm plates on either side and subjected to tension then maximum value of pitch 'p' is:

Options :

1. ✖ 72 mm

2. ✖ 200 mm

3. ✖ 120 mm

4. ✔ 96 mm

Question Number : 122 Question Id : 1842421022 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A circular shaft of diameter 150 mm is welded to a rigid plate by an external all-round fillet weld of size 10 mm. If a torque of 10 kNm is applied to the shaft, then find maximum shear stress developed in the fillet weld.

Options :

1. ✖ 80.8 N/mm^2

2. ✔ 40.4 N/mm^2

Question Number : 123 Question Id : 1842421023 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The retaining wall is considered to be safe against sliding if which of the following conditions is satisfied?

Options :

1. ✔ $(0.9 \times F_{\text{Resisting force}} / F_{\text{Sliding force}}) \geq 1.40$

2. ✖ $(0.9 \times F_{\text{Resisting force}} / F_{\text{Sliding force}}) \geq 1.70$

3. ✖ $(0.9 \times F_{\text{Resisting force}} / F_{\text{Sliding force}}) < 1.40$

4. ✖ $(F_{\text{Resisting force}} / F_{\text{Sliding force}}) > 2$

Question Number : 124 Question Id : 1842421024 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The clear spans of a two-way slab are $4.6\text{m} \times 6.20\text{m}$, and it is subjected to the factored load of 19 kN/m^2 (including dead loads also). The shear force along the longer edge will be:

Options :

1. ✖ 15.5 kN

2. ✖ 25.7 kN

3. ✖ 29.13 kN

4. ✔ 35.06 kN

Correct Marks : 2 Wrong Marks : 0.66

In case of a continuous beam, the shear force coefficients at the support next to the end support and inner side of mid span (Where w_d = Dead load and imposed load(fixed), w_L = live load):

Options :

1. ✖ $(0.40w_d + 0.45w_L)L_c$

2. ✖ $(0.60w_d + 0.60w_L)L_c$

3. ✖ $(0.50w_d + 0.60w_L)L_c$

4. ✔ $(0.55w_d + 0.60w_L)L_c$

Question Number : 126 Question Id : 1842421026 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following statements is incorrect?

Options :

1. ✔

The compressive strength of concrete increases with increase in water cement ratio of the mix.

2. ✖

The modulus of elasticity of concrete increases with increase in the compressive strength of concrete.

3. ✖

The shear strength of concrete increases with increase in the compressive strength of concrete.

4. ✖

Creep and the shrinkage of concrete depends upon the water-cement ratio of the concrete mix.

Question Number : 127 Question Id : 1842421027 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The atmospheric pressure is given as 680 mm of Hg at a mountain location. Convert this to kPa and metre of water forms respectively.

Options :

1. ✗ 90.7 kPa, 92.5 m of H₂O
2. ✗ 907 kPa, 9.25 m of H₂O
3. ✓ 90.7 kPa, 9.25 m of H₂O
4. ✗ 907 kPa, 92.5 m of H₂O

Question Number : 128 Question Id : 1842421028 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The muschel curves belong to the category of:

Options :

1. ✗ main characteristic curve of the turbine
2. ✗ operating characteristic curves of the turbine
3. ✓ constant efficiency curves of the turbine
4. ✗ operating characteristic of a pump

Question Number : 129 Question Id : 1842421029 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

A double acting duplex reciprocating pump has:

Options :

1. ✗ 4 pistons
2. ✗ 4 cylinders

4. ✗ 1 piston

Question Number : 130 Question Id : 1842421030 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

In a pelton turbine, the degree of reaction is:

Options :

1. ✗ One

2. ✓ Zero

3. ✗ In the range 0 to 0.5

4. ✗ In the range 0.5 to 1

Question Number : 131 Question Id : 1842421031 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

A new design of a valve is to be tested if liquid benzene flows through the valve, which of the following parameters is most important.

Options :

1. ✗ Froude No

2. ✓ Reynolds No

3. ✗ Mach No

4. ✗ Euler No

Question Number : 132 Question Id : 1842421032 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

A velocity field in a particular flow is given by $V = 20y^2i - 20xyj$ m/s. The average angular velocity at points (1, -1, 2).

Options :

1. ✓ 0, 0, 30 rad/s

2. ✗ 0, 30 rad/s, 0

3. ✗ 30 rad/s, 0, 0

4. ✗ 0, 0, 0

Question Number : 133 Question Id : 1842421033 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

To model a river, the horizontal scale is 1:500 and vertical scale is 1: 50. Determine model bed slope if prototype bed slope is 0.0003.

Options :

1. ✗ 0.0003

2. ✓ 0.003

3. ✗ 0.03

4. ✗ 0.00003

Question Number : 134 Question Id : 1842421034 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A submarine is moving horizontally in seawater having density of 1026 kg/m^3 , with its axis 20 m below the surface of the water. A pilot tube is placed in front of submarine along its axis and is connected to differential mercury manometer showing a deflection of 20 cm. Determine the velocity of submarine.

Options :

1. ✖ 0.69 m/s

2. ✖ 69.3 m/s

3. ✔ 6.93 m/s

4. ✖ 0.069 m/s

Question Number : 135 Question Id : 1842421035 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A plunger is fitted to a vertical pipe filled with water. The lower end of the pipe is submerged in a sump. The plunger is drawn up with an acceleration of 5 m/s^2 . Find the maximum height above the water level of the sump at which the plunger will work without cavitation. Assume atmospheric pressure = 10.0 m. Limiting pressure from cavitation consideration = 2 m. Take acceleration of gravity as 10 m/s^2 .

Options :

1. ✖ 0.533 m

2. ✖ 53.3 m

3. ✔ 5.33 m

4. ✖ 0.053 m

Question Number : 136 Question Id : 1842421036 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The drag force on a streamlined shape is due primarily to the:

Options :

1. ✖ wake

2. ✖ component of pressure force acting in flow direction

4. ✗ separate region near the trailing edge

Question Number : 137 Question Id : 1842421037 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The percentage of total quantity of fresh water available in the world of either in the liquid state or in the frozen state is about:

Options :

1. ✓ 2.5%

2. ✗ 10%

3. ✗ 15%

4. ✗ 30%

Question Number : 138 Question Id : 1842421038 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Evapotranspiration can be found out by using:

Options :

1. ✗ phytometer

2. ✗ hygrometer

3. ✗ anemometer

4. ✓ lysimeter

Question Number : 139 Question Id : 1842421039 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

A reservoir is called linear reservoir when the storage is a function of _____

Options :

1. ✖ only inflow
2. ✔ only outflow
3. ✖ both inflow and outflow
4. ✖ neither inflow nor outflow

Question Number : 140 Question Id : 1842421040 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The type of the geological formations that are highly porous but impermeable are called:

Options :

1. ✖ aquifer
2. ✔ aquiclude
3. ✖ aquitard
4. ✖ aquifuge

Question Number : 141 Question Id : 1842421041 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Manning's formula, which is used for calculating mean velocity of open channel flow, is given by:

Options :

1. ✖ $V = (1/n)R^{3/4}S^{1/2}$

2. ✖ $V = (1/n)R^{2/3}S^{3/2}$

3. ✔ $V = (1/n)R^{2/3}S^{1/2}$

4. ✖ $V = (1/n)R^{2/3}S^{1/3}$

Question Number : 142 Question Id : 1842421042 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following stage measurement instruments employs the stilling well?

Options :

1. ✖ Bubble gauge

2. ✖ Staff gauge

3. ✖ Wire gauge

4. ✔ Float gauge recorder

Question Number : 143 Question Id : 1842421043 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The storage coefficient of a well is defined as the:

Options :

1. ✔ discharge per unit draw down of a well

2. ✖ measure of water that can be removed by pumping

3. ✖ limit of withdrawal from well without depletion of the aquifer

Question Number : 144 Question Id : 1842421044 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A storm of 6 hour duration gives a direct runoff of 6 cm and has an average intensity of 3 cm/hr. Calculate the ϕ index.

Options :

1. ✖ 1.5 cm/hr

2. ✔ 2 cm/hr

3. ✖ 2.5 cm/hr

4. ✖ 3 cm/hr

Question Number : 145 Question Id : 1842421045 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The terms 'alternate depths' is used in open-channel flow to denote the depths:

Options :

1. ✖ having the same specific force for a given discharge

2. ✖ having the same total energy for a given discharge

3. ✖ having the same kinetic energy for a given discharge

4. ✔ having the same specific energy for a given discharge

Question Number : 146 Question Id : 1842421046 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For a hydraulically efficient trapezoidal channel with a depth of flow y , the wetted perimeter is equal to:

Options :

2. ✖ $\sqrt{3}y^2$

3. ✔ $2\sqrt{3}y$

4. ✖ $y/2\sqrt{3}$

Question Number : 147 Question Id : 1842421047 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a triangular channel, the critical depth is given by:

Options :

1. ✔ $(2Q^2/gm^2)^{1/5}$

2. ✖ $(gQ^2/2m^2)^{1/5}$

3. ✖ $(2Q^2/gm^2)^{1/7}$

4. ✖ $(gQ^2/gm^2)^{1/7}$

Question Number : 148 Question Id : 1842421048 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following conditions represents the gradually varied steady flow?

Options :

1. ✖ Flood flow in a river

2. ✖ Overland flow due to rain fall

4. ✗ Hydraulic jump

Question Number : 149 Question Id : 1842421049 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

An unconfined aquifer with a c/s area of $3 \times 10^4 \text{ m}^2$, having a hydraulic gradient of 1 in 100, discharges ground water into stream at the rate of $1200 \text{ m}^3/\text{day}$. The corresponding hydraulic conductivity of this aquifer will be:

Options :

1. ✓ 4 m/day

2. ✗ 4.5 m/day

3. ✗ 5 m/day

4. ✗ 3.5 m/day

Question Number : 150 Question Id : 1842421050 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A bridge has an expected life of 25 years, and is designed for a flood magnitude of return period 50 years. What is the risk associated with this hydrologic design?

Options :

1. ✗ $(0.98)^{25}$ 2. ✗ $(0.98)^{50}$ 3. ✗ $(0.5)^{0.25}$ 4. ✓ $1 - (0.98)^{25}$