



**(Papers) SSC Junior Engineer Exam Paper - 2018 "held
on 22 Jan 2018" Afternoon Shift
(Civil Engineering)**

QID : 701 - The defect that is caused by falling of rain water on the hot surfaces of the bricks is known as_____.

Options:

- 1) Bloating
- 2) chuffs
- 3) Cracks
- 4) lamination

Correct Answer: chuffs

QID : 702 - Which of the following property of bitumen is related to the Pensky-Marten test?

Options:

- 1) Ductility
- 2) Softening point
- 3) Flash and fire point
- 4) Viscosity

Correct Answer: Flash and fire point

QID : 703 - The defect in timber that arises due to the swelling caused by growth of layers of sap wood over the wounds after branch is cut off is called as_____.

Options:

- 1) checks
- 2) knots
- 3) shakes
- 4) rind gall

Correct Answer: rind gall

QID : 704 - Which of the following is the measure of ease with which the wood may split?

Options:

- 1) Cleavability
- 2) Shearing strength
- 3) Stiffness
- 4) Toughness

Correct Answer: Cleavability

QID : 705 -

The gel space ratio of a concrete sample is given as 0.589.

What is the theoretical strength (N/mm^2) of that concrete sample?

एक कंक्रीट नमूने का जेल स्पेस अनुपात 0.589 दिया गया है।

उस कंक्रीट नमूने की सैद्धांतिक ताकत (N/mm^2) क्या है?

Options:

- 1) 49.04
- 2) 65.71
- 3) 104.03
- 4) 116.8

Correct Answer: 49.04

QID : 706 - Which of the following represents the CORRECT expression for maturity (M) of the concrete sample?

Options:

- 1)

$$M = \sum (\text{Time} \times \text{Tempertaure})$$

2)

$$M = \sum \left(\frac{\text{Time}}{\text{Tempertaure}} \right)$$

3)

$$M = \sum \left(\sqrt{\frac{\text{Time}}{\text{Tempertaure}}} \right)$$

4)

$$M = \sum (\text{Time} + \text{Tempertaure})$$

Correct Answer:

QID : 707 - The aggregate which is obtained from the seashore or rivers and produces minimum voids in the concrete is known as_____.

Options:

- 1) angular aggregates
- 2) flaky aggregates
- 3) irregular aggregates
- 4) rounded aggregates

Correct Answer: rounded aggregates

QID : 708 - The detachment of the paint film from the surface is known as _____.

Options:

- 1) chalking
- 2) cracking
- 3) flaking
- 4) wrinkling

Correct Answer: flaking

QID : 709 - Which of the following is the homogeneous solution of resins in the alcohol?

Options:

- 1) Distemper
- 2) Enamel paint
- 3) Plastic paint

4) Varnish

Correct Answer: Varnish

QID : 710 - In the softening point test of the bitumen with the help of ring and ball apparatus, what is the diameter (cm) of the steel ball?

Options:

1) 0.35

2) 0.65

3) 0.95

4) 1.25

Correct Answer: 0.95

QID : 711 - Which of the following is the CORRECT statement for length of the short wall, as one move from earthwork to brick work in super structure in long and short wall method?

Options:

1) Its value decreases

2) Its value depends upon the length of the wall.

3) Its value increases.

4) Its value remains same.

Correct Answer: Its value increases.

QID : 712 - Which of the following is the unit of measurement for rivets?

Options:

1) Bags

2) Cubic meter

3) Numbers

4) Quintal

Correct Answer: Quintal

QID : 713 - Which of the following statement is CORRECT for units of measurement?

Options:

1) Bands of specified width are measured in running meter.

2) Work consists of the linear measurement and is measured in square meter.

3) Single units are measured in meter.

4) Work consists of areal surface and is measured in cubic meter.

Correct Answer: Work consists of areal surface and is measured in cubic meter.

QID : 714 - Which of the following area is NOT included in the plinth area of the building?

Options:

- 1) Area of the lofts.
- 2) Area of Barsati at terrace level.
- 3) Area of walls at floor level.
- 4) Porches of non-cantilever type.

Correct Answer: Area of the lofts.

QID : 715 - Which of the following multiplying factor is used for the estimation of lead for Cartze tracks?

Options:

- 1) 0.8
- 2) 1
- 3) 1.1
- 4) 1.2

Correct Answer: 1.1

QID : 716 - Threading in the iron is measured in _____.

Options:

- 1) centimeter
- 2) kilogram
- 3) number
- 4) square centimeter

Correct Answer: centimeter

QID : 717 - Calculate the cost (Rs.) of 100 mm thick brick lining of a septic tank of size 5 m x 3 m x 1.5 m, if the rate of lining is Rs. 200 per square meter.

Options:

- 1) 4500
- 2) 4800
- 3) 5400

4) 7800

Correct Answer: 7800

QID : 718 - Calculate the annual percentage depreciation of a machine using the constant percentage method, if purchasing cost is Rs. 12,000 and scrap value is Rs 3,000 and the life of the machine is 8 years.

Options:

1) 9.37

2) 16

3) 26.67

4) 33.33

Correct Answer: 16

QID : 719 - The number of the bricks delivered by an unskilled labour to a distance of 10 m in a working day is approximately _____.

Options:

1) 1500

2) 2200

3) 4200

4) 5500

Correct Answer: 4200

QID : 720 - Calculate the quantity (cubic meter) of fine aggregate required for construction of a circular water tank of 3.5 m diameter and 5 m height, if M 25 cement concrete is used.

Options:

1) 12

2) 18.5

3) 37

4) 48

Correct Answer: 37

QID : 721 - Which type of error is represented by a closed traverse, if the algebraic sum of latitude of all the lines is zero?

Options:

- 1) Compensating error
- 2) Negative error
- 3) No error
- 4) Positive error

Correct Answer: No error

QID : 722 - The difference between the fore bearing and back bearing for any station is equal to _____.

Options:

- 1) external angle
- 2) either external or internal angle
- 3) internal angle
- 4) right angle

Correct Answer: either external or internal angle

QID : 723 - Which of the following statement is CORRECT when the theodolite is properly adjusted?

Options:

- 1) Horizontal line passes through the centre of the horizontal circle.
- 2) Tangent to plate bubble must be perpendicular to horizontal axis.
- 3) Tangent to plate bubble must be perpendicular to vertical axis.
- 4) Vertical line passes through the centre of the vertical circle.

Correct Answer: Tangent to plate bubble must be perpendicular to vertical axis.

QID : 724 - Which of the following test is used to make the horizontal axis perpendicular to the vertical axis?

Options:

- 1) Azimuth test
- 2) Cross hair ring test
- 3) Spire test
- 4) Vertical arc test

Correct Answer: Spire test

QID : 725 - For more precise prediction of the terrain relief, the contour interval should____.

Options:

- 1) decrease continuously
- 2) increase continuously
- 3) be larger
- 4) be smaller

Correct Answer: be smaller

QID : 726 -

The areas included by contour lines for a proposed dam are given as,

Contour (m)	410	420	430	440	450
Area (hectares)	205	120	145	95	135

Calculate the capacity (cubic meter) of the dam by trapezoidal method.

एक प्रस्तावित बांध के लिए समोच्च रेखा में शामिल क्षेत्रफल दिए गए हैं,

समोच्च (मीटर)	410	420	430	440	450
क्षेत्रफल (हेक्टेयर)	205	120	145	95	135

ट्रिपोज़ाइडल विधि द्वारा बांध की क्षमता (घन मीटर) की गणना करें।

Options:

- 1) 42000000
- 2) 53000000
- 3) 70000000
- 4) 80000000

Correct Answer: 53000000

QID : 727 - Which of the following statement is CORRECT for estimating the corrected area from a map of shrunk factor 'F'?

Options:

- 1) It is directly proportional to F.
- 2) It is directly proportional to square of F.
- 3) It is inversely proportional to F.
- 4) It is inversely proportional to square of F

Correct Answer: It is inversely proportional to square of F

QID : 728 - Which of the following leveling method is used to determine the difference of elevation of two points that are quite apart?

Options:

- 1) Check leveling
- 2) Fly leveling
- 3) Reciprocal leveling
- 4) Simple leveling

Correct Answer: Reciprocal leveling

QID : 729 - A level is set on a station at a distance of 500 m from point A and 800 m from point B. The staff readings on the staffs kept at point A and B are 1.55 m and 1.95 m respectively. Calculate the true difference in elevation of the point A and B.

Options:

- 1) 0.348
- 2) 0.374
- 3) 0.4
- 4) 0.426

Correct Answer: 0.374

QID : 730 - Which of the following method estimates the best volume of earthwork of an irregular embankment?

Options:

- 1) Average ordinate method
- 2) Mid-ordinate method
- 3) Simpson's method
- 4) Trapezoidal method

Correct Answer: Simpson's method

QID : 731 - Which of the following represents the void ratio of soil sample whose porosity is 0.452?

Options:

- 1) 0.264
- 2) 0.561
- 3) 0.729

4) 0.825

Correct Answer: 0.825

QID : 732 - The moisture content in a soil sample is 18.2% and specific gravity of the soil particles is given by 2.65. What is the void ratio for sample, if the soil is fully saturated?

Options:

1) 0.157

2) 0.291

3) 0.482

4) 0.634

Correct Answer: 0.482

QID : 733 - If the degree of saturation of soil is given by 67.89%, what is the percentage of air content of the soil?

Options:

1) 10.5

2) 20.25

3) 32.11

4) 40.43

Correct Answer: 32.11

QID : 734 - Which of the following expression represent the relative compaction of soil, where variables have their standard meanings?

Options:

1)

$$R = \frac{\gamma_{d(\text{field})}}{\gamma_{d(\text{max-lab})}} \times 100$$

2)

$$R = \frac{\gamma_{d(\text{max-lab})}}{\gamma_{d(\text{field})}} \times 100$$

3)

$$R = \frac{1 - \gamma_{\alpha}(\text{field})}{\gamma_{\alpha}(\text{max-lab})}$$

4) None of these

Correct Answer:

QID : 735 - The type of fluid in which flow and fluid properties does not change with time at any given location, is known as_____.

Options:

- 1) non-uniform flow
- 2) rotational flow
- 3) steady flow
- 4) unsteady flow

Correct Answer: steady flow

QID : 736 -

For a flow, the velocity components are given by $u = (\lambda xy^2 - x^3 y^2)$ and $v = (x^2 y^3 - 3y^3)$. What is the value of λ for the possible flow field which includes steady incompressible flow?

एक प्रवाह के लिए, वेग घटकों को $u = (\lambda xy^2 - x^3 y^2)$ और $v = (x^2 y^3 - 3y^3)$ द्वारा दिखाया जाता है। संभावित प्रवाह क्षेत्र के लिए λ का मान क्या है जिसमें स्थिर असंक्षेपणीय प्रवाह शामिल है?

Options:

- 1) 3
- 2) 5
- 3) 7
- 4) 9

Correct Answer: 9

QID : 737 - What is the value of angle (degree) between stream lines and equipotential lines at the point of intersection in the flow net?

Options:

- 1) 0
- 2) 45

3) 60

4) 90

Correct Answer: 90

QID : 738 - What is the cross-sectional area (sq. m) of the channel, if its hydraulic radius and wetted perimeter is given as 300 cm and 860 cm respectively?

Options:

1) 10.5

2) 15.6

3) 25.8

4) 32.4

Correct Answer: 25.8

QID : 739 - The flow in a channel is laminar and Reynolds number is given by 1200. What is the friction factor for the channel?

Options:

1) 0.001

2) 0.008

3) 0.023

4) 0.053

Correct Answer: 0.053

QID : 740 - A circular pipe of diameter 0.5 m carries the discharge of 50 liters/s. The head loss due to friction in pipe is 0.15 m and friction factor for the pipe is given as 0.01. What is the length (m) of pipe?

Options:

1) 1150

2) 1860

3) 2263

4) 2785

Correct Answer: 2263

QID : 741 - The Froude number for a hydraulic jump is 3.2, the type of jump is_____.

Options:

- 1) oscillating jump
- 2) steady jump
- 3) strong jump
- 4) weak jump

Correct Answer: oscillating jump

QID : 742 - At a certain point, the absolute pressure and atmospheric pressure is given by 850 mm of Hg and 700 mm of Hg respectively. What is the value of gauge pressure (mm of Hg) at that point?

Options:

- 1) 50
- 2) 100
- 3) 150
- 4) 200

Correct Answer: 150

QID : 743 - The head produced by a liquid of relative density 1.62 is equal to the pressure of 250 kPa. What is the head (m) produced by the liquid?

Options:

- 1) 5.04
- 2) 7.53
- 3) 15.73
- 4) 25.21

Correct Answer: 15.73

QID : 744 -

Which of the following expression represents the energy dissipated in the hydraulic jump? y_1 and y_2 are the flow depth at supercritical flow and subcritical flow respectively.

निम्न में से कौन सा अभिव्यक्ति हाइड्रोलिक जम्प में अपव्यय होने वाली ऊर्जा का प्रतिनिधित्व करता है? क्रमशः y_1 और y_2 अति क्रांतिक प्रवाह और अल्प क्रांतिक प्रवाह की गहराई हैं।

Options:

1)

$$\Delta E = \frac{(y_2 - y_1)^3}{4y_1y_2}$$

2)

$$\Delta E = \frac{(y_2 + y_1)^3}{4y_1y_2}$$

3)

$$\Delta E = \frac{(y_2 - y_1)^3}{4\sqrt{y_1y_2}}$$

4)

$$\Delta E = \frac{(y_2 - y_1)^2}{4y_1y_2}$$

Correct Answer:

QID : 745 - Which of the following statement is CORRECT for duty of the water?

Options:

- 1) It increases with an increase in temperature.
- 2) It increases with an increase in wind speed.
- 3) It increases with an increase in humidity
- 4) It is not affected by climatic conditions.

Correct Answer: It increases with an increase in humidity

QID : 746 - Which of the following process includes spreading of an external material on the soils to increase infiltration and reduce evaporation?

Options:

- 1) Mulching
- 2) Paleo irrigation
- 3) Ploughing

4) Tillage

Correct Answer: Mulching

QID : 747 - The value of rigidity factor for design purpose, if the tyre pressure is greater than 0.7 MPa is _____.

Options:

- 1) greater than 1.
- 2) less than 1.
- 3) equal to 1
- 4) zero

Correct Answer: less than 1.

QID : 748 - Calculate the design rate of super elevation on a 3 degree horizontal curve for a narrow gauge track, if design velocity on the curve is 70 km/h.

Options:

- 1) 0.051
- 2) 0.07
- 3) 0.067
- 4) 0.112

Correct Answer: 0.051

QID : 749 - The path taken by the continuous discharge of gaseous effluents emitted from chimney is commonly known as_____.

Options:

- 1) lapse rate
- 2) inversion
- 3) plume
- 4) None of these

Correct Answer: plume

QID : 750 - The measure of absorption or scattering of light by the suspended materials present in the water is known as_____.

Options:

- 1) alkalinity
- 2) color

3) hardness

4) turbidity

Correct Answer: turbidity

QID : 751 - Number of rivets required in a joint is

Options:

1) load /shear strength of a rivet

2) load/bearing strength of a rivet

3) load/tearing strength of a rivet

4) None of these

Correct Answer: None of these

QID : 752 - Effective length of a column effectively held in position and restrained in direction at one end but neither held in position nor restrained in direction at the other end is

Options:

1) L

2) 0.67 L

3) 0.85 L

4) 2 L

Correct Answer: 2 L

QID : 753 - A compression member consisting of angle sections may be a

Options:

1) continuous member

2) discontinuous single angle strut

3) discontinuous double angle strut

4) All option are correct

Correct Answer: All option are correct

QID : 754 - If the area of cross-section of a single angle discontinuous strut is 30 cm² and allowable working stress corresponding to its slenderness ratio is 625 kg/cm², the safe load carrying capacity of the member is

Options:

1) 10 tonnes

- 2) 12 tonnes
- 3) 15 tonnes
- 4) 18 tonnes

Correct Answer: 15 tonnes

QID : 755 - If the depth of two column sections are equal, then the column splice is provided

Options:

- 1) with filler plates
- 2) with bearing plates
- 3) with filler and bearing plates
- 4) None of these

Correct Answer: None of these

QID : 756 - When a tension member is made of four angles with a plate as web, the allowance for holes is made as

Options:

- 1) two holes for each angle and one hole for the web
- 2) one hole for each angle and one hole for the web
- 3) one hole for each angle and two holes for the web
- 4) None of these

Correct Answer: one hole for each angle and two holes for the web

QID : 757 - The beam outside a wall up to floor level above it, is known as

Options:

- 1) rafter
- 2) lintel
- 3) spandrel beam
- 4) None of these

Correct Answer: spandrel beam

QID : 758 - For a rectangular section, the ratio of the maximum and average shear stresses is

Options:

- 1) 1.5

- 2) 2
- 3) 2.5
- 4) 3

Correct Answer: 1.5

QID : 759 - For a cantilever beam of length L continuous at the support and unrestrained against torsion at the support and free at the end, the effective length ' l ' is equal to

Options:

- 1) $l = L$
- 2) $l = 2L$
- 3) $l = 0.5L$
- 4) $l = 3L$

Correct Answer: $l = 3L$

QID : 760 - Spans of continuous fillers are considered approximately equal if the longest span does not exceed the shortest span by more than

Options:

- 1) 0.05
- 2) 0.1
- 3) 0.15
- 4) 0.2

Correct Answer: 0.15

QID : 761 - Pick up the incorrect statement from the following

Options:

- 1) Admixtures accelerate hydration
- 2) Admixtures make concrete water proof
- 3) Admixtures make concrete acid proof
- 4) Admixtures give high strength

Correct Answer: Admixtures accelerate hydration

QID : 762 - Pick up the correct statement from the following

Options:

- 1) Calcium chloride acts as a retarder
- 2) Gypsum (calcium sulphate) acts as an accelerator
- 3) Gypsum (calcium sulphate) acts as a retarder
- 4) None of these

Correct Answer: Gypsum (calcium sulphate) acts as a retarder

QID : 763 - High temperature

Options:

- 1) increases the strength of concrete
- 2) decreases the strength of concrete
- 3) has no effect on the strength of concrete
- 4) None of these

Correct Answer: decreases the strength of concrete

QID : 764 - Reciprocal levelling eliminates:-

Options:

- 1) Collimation error
- 2) Collimation, curvature and refraction error
- 3) curvature and refraction error
- 4) curvature error fully and refraction error partly

Correct Answer: curvature error fully and refraction error partly

QID : 765 - Proper proportioning of concrete, ensures

Options:

- 1) desired strength and workability
- 2) desired durability
- 3) water tightness of the structure
- 4) All option are correct

Correct Answer: All option are correct

QID : 766 - Curing

Options:

- 1) reduces the shrinkage of concrete
- 2) preserves the properties of concrete
- 3) prevents the loss of water by evaporation

4) All option are correct

Correct Answer: All option are correct

QID : 767 - If the effective working time is 7 hours and per batch time of concrete is 3 minutes, the output of a concrete mixer (in litres) of 150-liter capacity is

Options:

- 1) 15900
- 2) 16900
- 3) 17900
- 4) 18900

Correct Answer: 18900

QID : 768 - The operation of removing humps and hollows of uniform concrete surface is known as

Options:

- 1) floating
- 2) screeding
- 3) troweling
- 4) finishing

Correct Answer: screeding

QID : 769 - According to the recommendations of IS: 456 – 1978, the expansion joints

Options:

- 1) are provided where plane changes abruptly
- 2) are provided to ensure minimum resistance
- 3) are supported on separate columns
- 4) All option are correct

Correct Answer: All option are correct

QID : 770 - An aggregate is said to be flaky if its least dimension is less than

Options:

- 1) 1/5th of the mean dimension
- 2) 2/5th of the mean dimension
- 3) 3/5th of the mean dimension
- 4) 4/5th of the mean dimension

Correct Answer: 3/5th of the mean dimension

QID : 771 - The most useless aggregate is one whose surface texture is

Options:

- 1) smooth
- 2) granular
- 3) glassy
- 4) honey combed & porous

Correct Answer: glassy

QID : 772 - A beam curved in plan is designed for

Options:

- 1) bending moment and shear
- 2) bending moment and torsion
- 3) shear and torsion
- 4) bending moment, shear and torsion

Correct Answer: bending moment, shear and torsion

QID : 773 - Pick up the correct statement from the following

- A. The free water is the amount of water added while mixing and the amount of water held on the surface of the aggregates prior to mixing
- B. The total water is the free water and the amount actually absorbed by the aggregates

Options:

- 1) Only A
- 2) Only B
- 3) Neither A nor B
- 4) Both A and B

Correct Answer: Both A and B

QID : 774 - The size of fine aggregates does not exceed

Options:

- 1) 2.75 mm
- 2) 3.00 mm
- 3) 3.75 mm

4) 4.75 mm

Correct Answer: 4.75 mm

QID : 775 - Which one of the following tests, is used to test aggregate for its abrasion resistance

Options:

- 1) Deval attrition test
- 2) Dorry abrasion test
- 3) Los Angeles test
- 4) All option are correct

Correct Answer: Deval attrition test

QID : 776 - The flange splice in plate girder is subjected to:-

Options:

- 1) axial force only
- 2) shear and axial force
- 3) bending moment and axial force
- 4) shear force and bending moment

Correct Answer: axial force only

QID : 777 - Initial setting time of rapid-hardening Portland cement is nearly

Options:

- 1) half a minute
- 2) 5 minutes
- 3) 30 minutes
- 4) 45 minutes

Correct Answer: 5 minutes

QID : 778 - Which of the following statements is true?

Options:

- 1) Addition of pozzolana to cement decreases workability
- 2) Addition of pozzolana to cement increases strength
- 3) Addition of pozzolana to cement increases heat of hydration
- 4) None of these

Correct Answer: None of these

QID : 779 - With usual notations the depth of the neutral axis of a balanced section, is given by

Options:

- 1) $mc/t = (d-n)/n$
- 2) $t/mc = (d-n)/n$
- 3) $t/mc = (d+n)/n$
- 4) $mc/t = n/(d-n)$

Correct Answer: $mc/t = n/(d-n)$

QID : 780 - Distribution of shear intensity over a rectangular section of a beam, follows:

Options:

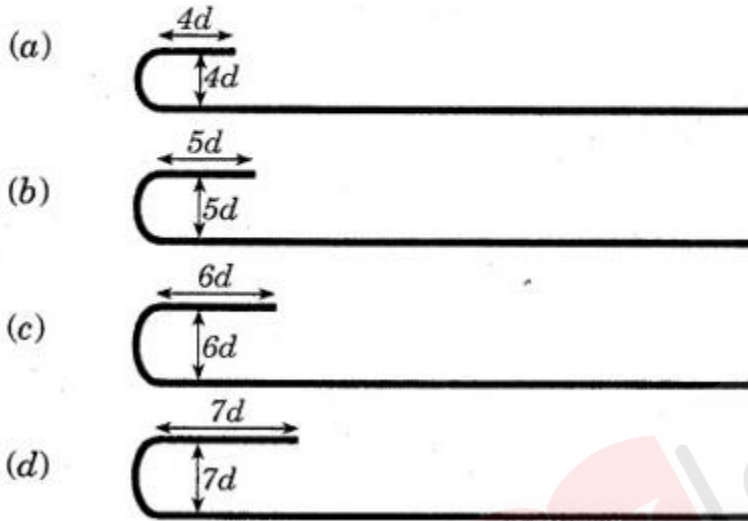
- 1) a circular curve
- 2) a straight line
- 3) a parabolic curve
- 4) an elliptical curve

Correct Answer: a parabolic curve

QID : 781 -

The correct hook for mild steel reinforcement bars, according to specifications is shown in which of the following figures?

विनिर्देशों के अनुसार सौम्य स्टील सुदृढीकरण बार के लिए सही हुक, निम्न चित्रों में से किस में दिखाया गया है?



Options:

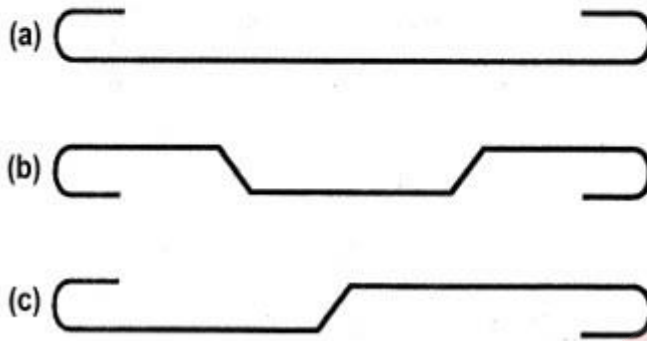
- 1) (a)
- 2) (b)
- 3) (c)
- 4) (d)

Correct Answer: (a)

QID : 782 -

The bar carrying positive bending moment is bent up to resist negative bending moment is shown in which of the following figures?

सकारात्मक मुड़ाव वाला पट्टी नकारात्मक झुकाव का विरोध करने के लिए झुका हुआ बार, निम्न चित्र में से किसमें दिखाई देता है?



Options:

- 1) (a)
- 2) (b)
- 3) (c)
- 4) None of these

Correct Answer: (c)

QID : 783 - Columns may be made of plain concrete if their unsupported lengths do not exceed their least lateral dimension

Options:

- 1) two times
- 2) three times
- 3) four times
- 4) five times

Correct Answer: four times

QID : 784 - The effective span of a simply supported slab is

Options:

- 1) distance between the centers of the bearings
- 2) clear distance between the inner faces of the walls plus twice the thickness of the wall
- 3) clear span plus effective depth of the slab
- 4) None of these

Correct Answer: clear distance between the inner faces of the walls plus twice the thickness of the wall

QID : 785 - The weight of reinforced concrete is generally taken as

Options:

- 1) 2200 kg/m³
- 2) 2300 kg/m³
- 3) 2400 kg/m³
- 4) 2500 kg/m³

Correct Answer: 2400 kg/m³

QID : 786 - Bottom bars under the columns are extended into the interior of the footing slab to a distance greater than

Options:

- 1) 42 diameters from the center of the column
- 2) 42 diameters from the inner edge of the column
- 3) 42 diameters from the outer edge of the column
- 4) 24 diameters from the center of the column

Correct Answer: 42 diameters from the outer edge of the column

QID : 787 - A pile of length L carrying a uniformly distributed load W per meter length is suspended at the center and from other two points $0.15 L$ from either end, the maximum hogging moment will be

Options:

- 1) $WL^2/15$
- 2) $WL^2/30$
- 3) $WL^2/60$
- 4) $WL^2/90$

Correct Answer: WL2/90

QID : 788 - Cantilever retaining walls can safely be used for a height not more than

Options:

- 1) 3 m
- 2) 4 m
- 3) 5 m
- 4) 6 m

Correct Answer: 6 m

QID : 789 - A simply supported uniform rectangular bar breadth b , depth d and length L carries an isolated load W at its mid-span. The same bar experiences an extension e under same tensile load. The ratio of the maximum deflection to the elongation is

Options:

- 1) L/d
- 2) $L/2d$
- 3) $(L/2d)^2$
- 4) $(L/3d)^2$

Correct Answer: $(L/2d)^2$

QID : 790 - The maximum deflection due to a load W at the free end of a cantilever of length L and having flexural rigidity EI is

Options:

- 1) $WL^2/2EI$
- 2) $WL^2/3EI$
- 3) $WL^3/2EI$
- 4) $WL^3/3EI$

Correct Answer: $WL^3/3EI$

QID : 791 - If normal stresses due to longitudinal and transverse loads on a bar are σ_1 and σ_2 respectively, the normal component of the stress on an inclined plane θ_0 to the longitudinal load is

Options:

1) $(\sigma_1 \sin^2 \theta) * (\sigma_2 \cos^2 \theta)$

2) $\sigma_1 \sin^2 2\theta + \sigma_2 \cos^2 \theta$

3) $(\sigma_1 - \sigma_2)(\sin^2 2\theta)/2$

4) $(\sigma_1 + \sigma_2)(\sin^2 2\theta)/2$

Correct Answer: $\sigma_1 \sin^2 2\theta + \sigma_2 \cos^2 \theta$

QID : 792 - For beams of uniform strength, if depth is constant, then

Options:

1) width is directly proportional to bending moment

2) width is directly proportional to square root of bending moment

3) width is directly proportional to three times the square root of bending moment

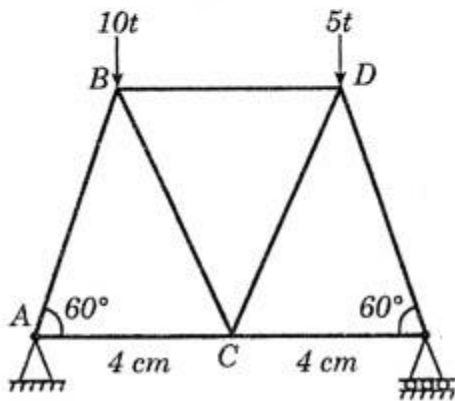
4) width is inversely proportional to bending moment

Correct Answer: width is directly proportional to bending moment

QID : 793 -

To determine the force in BD of the truss shown in the figure below, a section is passed through BD, CD and CE and the moments are taken about

नीचे दिए गए चित्र में दिखाए गए ट्रस के BD में बल निर्धारित करने के लिए, एक खंड BD, CD और CE के माध्यम से पारित किया जाता है और लिए गए क्षण है



Options:

1) joint A

2) joint B

3) joint C

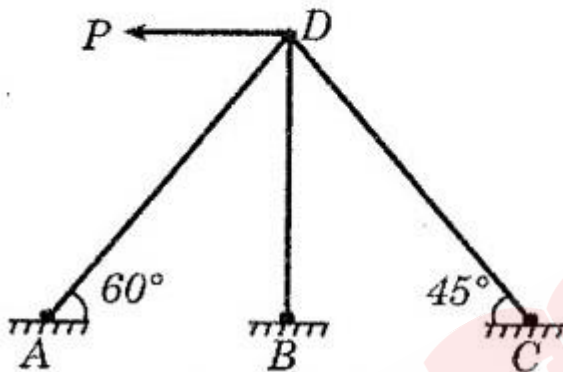
4) joint D

Correct Answer: joint C

QID : 794 -

The degree of indeterminacy of the frame shown in the figure below is

नीचे दिए गए चित्र में दिखाए गए फ्रेम की अनिश्चितता की डिग्री है



Options:

1) 0

2) 1

3) 2

4) 3

Correct Answer: 1

QID : 795 - For permissible shear stress f_s , the torque transmitted by a thin tube of mean diameter D and wall thickness t is

Options:

1) $\{(\pi D^2)/2\} t f_s$

2) $\{(\pi D)/2\} t f_s$

3) $\{(\pi D^2)\} t f_s$

4) $\{(\pi D^2 t^2)/4\} f_s$

Correct Answer: $\{(\pi D^2)/2\} t f_s$

QID : 796 - The strain energy stored in a spring when subjected to greatest load without being permanently distorted is called

Options:

- 1) stiffness
- 2) proof resilience
- 3) proof stress
- 4) proof load

Correct Answer: proof resilience

QID : 797 - Pick up the correct statement from the following:

Options:

- 1) In a loaded beam, the moment at which the first yield occurs is called yield moment
- 2) In a loaded beam, the moment at which the entire section of the beam becomes fully plastic, is called plastic moment
- 3) In a fully plastic stage of the beam, the neutral axis divides the section in two sections of equal area
- 4) All option are correct

Correct Answer: All option are correct

QID : 798 - A concentrated load P is supported by the free end of a quadrantal ring AB whose end B is fixed. The ratio of the vertical to horizontal deflections of the end A is

Options:

- 1) π
- 2) $\pi/2$
- 3) $\pi/3$
- 4) $\pi/4$

Correct Answer: $\pi/2$

QID : 799 - An isolated load W is acting at a distance 'a' from the left-hand support of a three-hinged arch of span '2l' and rise 'h' hinged at the crown. The vertical reaction of the arch is

Options:

- 1) $W a / 2 I$
- 2) $W I / a$
- 3) $W a / I$
- 4) $(W^2) / 2 I$

Correct Answer: $W a / 2 I$

QID : 800 - Slenderness ratio of a long column is

Options:

- 1) area of cross-section divided by radius of gyration
- 2) area of cross-section divided by least radius of gyration
- 3) radius of gyration divided by area of cross-section
- 4) length of column divided by least radius of gyration

Correct Answer: length of column divided by least radius of gyration

