Q : 01 - Which of the following defect appears due to presence of alkalies in the bricks?  
Options:  
1) Bloating  
2) Black core  
3) Cracks  
4) Efflorescence  
Correct Answer: Efflorescence

Q : 02 - For which of the following process Boucherie process is used?  
Options:  
1) Manufacturing of bricks  
2) Manufacturing of cement  
3) Production of clay tiles  
4) Treatment of green timber  
Correct Answer: Treatment of green timber

Q : 03 - What is the percentage content of asphalt in the cut-back asphalt?  
Options:  
1) 10%  
2) 30%  
3) 50%  
4) 80%  
Correct Answer: 80%

Q : 04 - In which of the following test of bitumen Ring and Ball apparatus is used?
Options:
1) Penetration test
2) Softening point test
3) Viscosity test
4) Flash and fire point test
Correct Answer: Softening point test

Q : 05 - The defect in timber that causes longitudinal separation of woods between the annular rings is known as__________.
Options:
1) knots
2) rind gall
3) shakes
4) twisted fibers
Correct Answer: shakes

Q : 06 - Which of the seasoning method is adopted for the rapid seasoning of timber on large scale to obtain any desired moisture content?
Options:
1) Air seasoning
2) Boiling process
3) Kiln seasoning
4) Water seasoning
Correct Answer: Kiln seasoning

Q : 07 - What is the gel-space ratio of a sample of concrete, if the concrete is made with the 600 g of cement with the water-cement ratio of 0.65?
Options:
1) 0.012
2) 0.432
3) 0.678
4) 0.874
Correct Answer: 0.678
Q : 08 - The concrete sample is cured at 15 degree Celsius for 28 days. If the origin temperature is taken as -11 degree Celsius, what is the maturity (degree Celsius days) of concrete sample?
Options:
1) 112
2) 308
3) 402
4) 728
Correct Answer: 728

Q : 09 - The ingredient of paint which are used to hide the surface irregularities and imparts color is known as_______.
Options:
1) adultrants
2) drier
3) pigments
4) solvents
Correct Answer: pigments

Q : 10 - If the least lateral dimension of aggregate is less than 0.6 times of its mean dimension, the aggregate is classified as_______.
Options:
1) angular
2) flaky
3) irregular
4) rounded
Correct Answer: flaky
Q: 11 - Explosive required for blasting is measured in \underline{________}.

Options:
1) cubic meter  
2) explosive power  
3) energy released  
4) kilograms  

Correct Answer: kilograms

Q : 12 - Which of the following is the correct statement for length of the long 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 decreases

Q : 13 - Calculate an approximate estimate (Rs.) of the building with total plinth area of the building is 500 square meters. The rate of the plinth area is Rs. 3,000 per square meters. The costs of the water supply and contingencies are 7% and 5% of cost of construction respectively.

Options:
1) 1500000  
2) 1650000  
3) 1680000  
4) 1870000  

Correct Answer: 1680000
Q : 14 - Calculate the cost of the plastering required for a wall of 4 m long, 3.5 m high and 300 mm thick, if the rate of plastering is Rs. 12 per square meter.

Options:
1) 101
2) 168
3) 336
4) 423

Correct Answer: 336

Q : 15 - Which of the following is the unit of measurement for the sills of windows?

Options:
1) Cubic meter
2) Meter
3) Number
4) Square meter

Correct Answer: Number

Q : 16 - Which of the following area is included in the plinth area of the building?

Options:
1) Area of the lofts.
2) Area of barsati at terrace level.
3) Cornices
4) Tower projecting above terrace level.

Correct Answer: Area of barsati at terrace level.

Q : 17 - Which of the following method is used for estimation of depreciation of building?

Options:
1) Constant percentage method
2) Direct comparison method
3) Logistic curve method
4) Rental method

Correct Answer: Constant percentage method

Q : 718 - Capitalized value of a property is the product of__________.

Options:
1) annual income and annuity
2) annual income and interest
3) annual income and sinking fun
4) annual income and year’s purchase

Correct Answer: annual income and year’s purchase
**QID : 719 -** Calculate the total quantity (cubic meter) of the coarse aggregate required for an isolated rectangular footing of size 3 m x 2 m, if 1 : 2 : 4 cement concrete is used. The depth of the footing is 600 mm.

**Options:**
1) 2.05
2) 2.46
3) 3.16
4) 3.82

**Correct Answer:** 3.16

**QID : 720 -** What is the actual size (mm) of the standard modular brick as per Indian Standards?

**Options:**
1) 190 x 90 x 90
2) 200 x 90 x 90
3) 200 x 100 x 100
4) 229 x 114 x 76

**Correct Answer:** 190 x 90 x 90

**QID : 721 -** Which of the following statement is not correct for the principle of surveying?

**Options:**
1) Location of a point with respect to two references
2) Major control points are measured with lower degree of precision.
3) Minor control points are measured with higher degree of precision
4) Working from part to whole

**Correct Answer:** Working from part to whole
Q : 22 - Which one of the following set of internal angles (degree) of a triangle does not show well condition triangle?

Options:
1) 20, 90, 70
2) 25, 45, 110
3) 40, 125, 15
4) 35, 80, 65

Correct Answer: 35, 80, 65

Q : 23 –
Calculate the magnetic declination, if the magnetic bearing of a line is \(N 81^\circ E\) and true bearing of the line is \(N 77^\circ E\).

Options:
1) 4 degree eastward
2) -8 degree eastward
3) -4 degree westward
4) 4 degree southward

Correct Answer: 4 degree eastward

Q : 24 - The back sight reading taken from a level at a bench mark is 1.56 m and a foresight at a point A is taken on an inverted staff is 1.65 m. Calculate the reduced level of the point A, if the reduced level of the bench mark is 150 m.

Options:
1) 146.79
2) 149.91
3) 152.8
4) 153.21

Correct Answer: 153.21
Q : 25 - The ratio of focal length of the objective to stadia interval is called _________.

Options:
1) additive factor
2) multiplying factor
3) staff intervals
4) subtractive factor

Correct Answer: multiplying factor

Q : 26 - Calculate the additive and multiplying constant, if the focal length of the objective glass is 250 mm, stadia intercept is 2 mm and distance of the instrument axis from the center of the object glass is 190 mm.

Options:
1) 95, 440 mm
2) 125, 440 mm
3) 440, 95 mm
4) 440, 125 mm

Correct Answer: 440, 125 mm

Q : 27 - What is the function of the plumbing fork in plane table surveying?

Options:
1) Used for centering of plane table.
2) Used for leveling the plane table
3) Used for orientation of plane table.
4) Used for sighting the object.

Correct Answer: Used for centering of plane table.
Q : 28 - The vernier scale in which 10 divisions of the viernier scale is equal to 9 divisions of the main scale is called_____.

Options:
1) direct vernier
2) double vernier
3) extended vernier
4) retrograde vernier

Correct Answer: direct vernier

Q : 29 - The maximum error (mm) on the drawing should not be greater than_______.

Options:
1) 0.01
2) 0.025
3) 0.25
4) 0.1

Correct Answer: 0.25

Q : 30 - Which of the following is true for the correction for the curvature?

Options:
1) It is proportional to the distance between the staff and instrument.
2) It is always negative and proportion to square of distance between the staff and instrument
3) It is always positive and proportion to square of distance between the staff and instrument
4) It is always positive and proportion to the distance between the staff and instrument

Correct Answer: It is always negative and proportion to square of distance between the staff and instrument
Q : 31 - The void ratio of a soil sample is given by 0.58. What is the porosity of soil sample?

Options:
1) 0.157
2) 0.367
3) 0.524
4) 0.602

Correct Answer: 0.367

Q : 32 - Which of the following bonding is responsible to combine the silica-gibbsite sheet in kaolinite clay mineral?

Options:
1) Covalent bond
2) Hydrogen bond
3) Ionic bond
4) Polar covalent bond

Correct Answer: Hydrogen bond

Q : 33 - The maximum dry density and optimum moisture content of a soil is given by 1.65 gm/cc and 20.5% respectively. What is the percentage of air content of soil at OMC, if the specific gravity of particles is given by 2.65?

Options:
1) 10.4
2) 15.5
3) 26.8
4) 35.7

Correct Answer: 10.4
Q : 34 - Which of the following type of roller is most suitable for proof rolling subgrades and for finishing operation of fills with clayey or sandy soils?

Options:
1) Pneumatic rubber tired roller
2) Sheepsfoot roller
3) Smooth wheel roller
4) Vibratory roller

Correct Answer: Smooth wheel roller

Q : 35 - The value obtained from dividing limiting value of circulation by area of closed contour is known as_______.

Options:
1) potential function
2) stream function
3) vorticity
4) None of these

Correct Answer: vorticity

Q : 36 - In which of the following case flow net can not be drawn?

Options:
1) Irrotational flow
2) Steady flow
3) When flow is governed by gravity
4) When flow is not governed by gravity

Correct Answer: When flow is governed by gravity

Q : 37 - Which of the following expression represent the simplified form of Colebrook equation use to calculate the friction factor, if variable have their standard meanings?

Options:

\[ \frac{1}{\sqrt{f}} = 1.14 + 2 \log \left( \frac{k_z}{D} + \frac{9.35}{\text{Re} \sqrt{f}} \right) \]

1)
2) 
\[ \frac{1}{\sqrt{f}} = 1.14 - 2 \log \left( \frac{k_s}{D} + \frac{9.35}{\text{Re} \sqrt{f}} \right) \]

3) 
\[ \frac{1}{\sqrt{f}} = 1.14 - 2 \log \left( \frac{k_s}{\text{Re} D} + \frac{18.7}{\text{Re} D \sqrt{f}} \right) \]

4) 
\[ \frac{1}{\sqrt{f}} = 1.14 - 2 \log \left( \frac{k_s}{\text{Re} D} + \frac{18.7}{\text{Re} D \sqrt{f}} \right) \]

Correct Answer:

**Q : 38 -**

If the velocity gradient is given by \( \phi \) and dynamic viscosity of the fluid is given by \( \mu \). What is the shear stress on the wall of the boundary layer in the direction of motion?

यदि वेक्टर \( \phi \) द्वारा दिया जाता है और \( \mu \) द्वारा दिया जाता है। गति की दिशा में सीमा पत्त की दीवार पर क्या तनाव है?

Options:

1) \( \mu \phi \)
2) \( \mu + \phi \)
3) \( \mu / \phi \)
4) \( \phi / \mu \)

Correct Answer:
Q : 39 - In which of the following unit kinematic viscosity of fluid is measured?

Options:
1) m/s
2) m/s²
3) dyne
4) stokes

Correct Answer: stokes

Q : 40 - The hydraulic radius and cross-sectional area of a channel is given by 4.5 m and 18.5 sq.m respectively. What is the wetted perimeter (m) of channel?

Options:
1) 4.11
2) 10.5
3) 18.5
4) 83.3

Correct Answer: 4.11

Q : 41 - Which of the following dimension represents the pressure?

Options:
1) \([\text{ML}^{-1}\text{T}^{2}]\)
2) \([\text{ML}^{-1}\text{T}^{-2}]\)
3) \([\text{LT}^{-2}]\)
4) 

Correct Answer:

Q : 42 - The water is flowing through 800 m long circular pipe of diameter 30 cm with the velocity of 0.26 m/s. The friction factor for the pipe is given as 0.016. What is the head loss (cm) in the pipe due to friction?

Options:
1) 5.5
2) 14.7
3) 21.3
4) 35.6
Correct Answer: 14.7

Q : 43 - If at the particular instant of time, the velocity of flow does not change with location over a specific region, the flow is called as ______.

Options:
1) steady flow
2) unsteady flow
3) uniform flow
4) non-uniform flow
Correct Answer: uniform flow

Q : 44 - Which of the following expression represents the continuity equation in case of steady incompressible flow?

Options:
1) 
\[
\frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} + \frac{\partial w}{\partial z} = 0
\]
2) 

2) \( \frac{\partial u}{\partial x} + \frac{\partial P}{\partial y} + \frac{\partial \rho}{\partial z} = 0 \)

3) \( \frac{\partial u}{\partial x} - \frac{\partial v}{\partial y} - \frac{\partial w}{\partial z} = 0 \)

4) None of these

**Correct Answer:**

**Q : 45 -** Which of the following statement is correct for sprinkler irrigation method?

**Options:**

1) It is used for rice and jute.
2) It is used for the soil has very low infiltration rate.
3) It is best suitable for very light soil.
4) It requires borders and field channel.

**Correct Answer:** It is best suitable for very light soil.

**Q : 46 -**

Calculate the permanent wetting point if the depth of water in the root zone at the permanent wetting point per meter depth of soil is 0.4 m. the dry density of the soil is 16 kN/m³.

**Options:**

1) 0.025
2) 0.245
3) 0.4
4) 0.64

**Correct Answer:** 0.245
Q : 47 - Which of the following is correct statement for the cross slope of the shoulder?

Options:
1) It is 1% flatter than the cross slope of pavement.
2) It’s minimum value is 2%.
3) It is 0.5% steeper than the cross slope of the pavement
4) Its value is equal to the cross slope of pavement

Correct Answer: It is 0.5% steeper than the cross slope of the pavement

Q : 48 - Calculate the safe stopping sight distance for a design speed of 60 km/h for two way traffic on a single lane road. The reaction time of driver is 2.5 sec.

Options:
1) 82.21
2) 136.23
3) 164.42
4) 674.24

Correct Answer: 164.42

Q : 49 - What is the theoretical oxygen demand (mg/l) of a glucose solution of concentration 500 mg/l?

Options:
1) 250.33
2) 380.65
3) 533.33
4) 650.21

Correct Answer: 533.33
Q: 50 - Which one of the following emission is the primary reason for the depletion of the ozone layer?

Options:
1) CO₂
2) CFCs
3) CFCs
4) NO₂

Correct Answer:

Q: 51 - According to the Unwin’s formula, if t is the thickness of the plate in mm, the nominal diameter of the rivet is

Options:
1) d=1.91t
2) d=1.91 t²
3) d=1.91 √t
4) None of these

Correct Answer: d=1.91 √t

Q: 52 - Effective length of a column effectively held in position at both ends and restrained in direction at one end is

Options:
1) L
2) 0.67 L
3) 0.85 L
4) 1.5 L

Correct Answer: 0.85 L
Q : 53 - The most economical section for a column is
Options:
1) rectangular
2) solid round
3) flat strip
4) tubular section
Correct Answer: tubular section

Q : 54 - If the unsupported length of a stanchion is 4 meters and least radius of gyration of its cross-section is 5, the slenderness ratio of the stanchion is
Options:
1) 60
2) 70
3) 80
4) 90
Correct Answer: 80

Q : 55 - A column splice is used to increase
Options:
1) length of the column
2) strength of the column
3) cross-sectional area of the column
4) None of these
Correct Answer: length of the column

Q : 56 - A structural member subjected to tensile force in a direction parallel to its longitudinal axis, is generally known as
Options:
1) a tie
2) a tie member
3) a tension member
4) All option are correct
Correct Answer: All option are correct
Q : 57 - A major beam in a building structure is known as
Options:
1) a girder
2) a floor beam
3) a main beam
4) All option are correct
Correct Answer: All option are correct

Q : 58 - In rolled steel beams, shear force is mostly resisted by
Options:
1) web only
2) flanges only
3) web and flanges together
4) None of these
Correct Answer: web only

Q : 59 - For a cantilever beam of length L built-in at the support and restrained against torsion at the free end, the effective projecting length 'l' is
Options:
1) l = 0.7L
2) l = 0.75L
3) l = 0.85L
4) None of these
Correct Answer: l = 0.75L

Q : 60 - Pick up the correct statement from the following:
Options:
1) The steel beams placed in plain cement concrete are known as reinforced beams
2) The filler joists are generally continuous over three supports only
3) Continuous fillers are connected to main beams by means of cleat angles
4) Continuous fillers are supported by main steel beams
Correct Answer: Continuous fillers are supported by main steel beams
Q : 61 - Concrete mainly consists of
Options:
1) cement
2) aggregates
3) admixture
4) All option are correct
Correct Answer: All option are correct

Q : 62 - A concrete using an air entrained cement

1) is more plastic and workable
2) is free from segregation and bleeding
3) is more plastic and workable
4) is free from segregation and bleeding

Correct Answer: is more plastic and workable

Q : 63 - of keeping concrete wet to enable it to attain full strength is known as:-
Options:
1) curing
2) wetting
3) drenching
4) quenching
Correct Answer: curing
Q : 65 - Wp and Wf are the weights of a cylinder containing partially compacted and fully compacted concrete. If the compaction factor (Wp/Wf) is 0.95, the workability of concrete is

Options:
1) extremely low
2) very low
3) low
4) high

Correct Answer: high

Q : 66 - The process of hardening the concrete by keeping its surface moist is known

Options:
1) placing
2) wetting
3) curing
4) compacting

Correct Answer: curing

Q : 67 - Pick up the correct statement from the following

Options:
1) There should not be any loss of cement from the charged drum of the mixer
2) Cement should be mixed for at least one minute
3) 10% of water is placed in the rotating drum before adding dry material
4) All option are correct

Correct Answer: All option are correct
Q : 68 - The final operation of finishing floors is known as
Options:
1) floating
2) finishing
3) troweling
4) All option are correct
Correct Answer: troweling

Q : 69 - Expansion joints are provided if the length of concrete structures exceeds
Options:
1) 10 m
2) 15 m
3) 25 m
4) 45 m
Correct Answer: 45 m

Q : 70 - A flaky aggregate is said to be elongated if its length is
Options:
1) equal to the mean size
2) twice the mean size
3) thrice the mean size
4) four times the mean size
Correct Answer: twice the mean size
Q : 71 - For the construction of cement concrete floor, the maximum permissible size of aggregates is

**Options:**
1) 4 mm
2) 6 mm
3) 8 mm
4) 10 mm

**Correct Answer:** 10 mm

Q : 72 - Sand requiring a high water cement ratio, belongs to

**Options:**
1) Zone I
2) Zone II
3) Zone III
4) Zone IV

**Correct Answer:** Zone I

Q : 73 - The maximum amount of dust which may be permitted in aggregates is

**Options:**
1) 5% of the total aggregates for low workability with a coarse grading
2) 10% of the total aggregates for low workability with a fine grading
3) 20% of the total aggregates for a mix having high workability with fine grading
4) All option are correct

**Correct Answer:** All option are correct
Q : 74 - The cement becomes useless if its absorbed moisture content exceeds

Options:
1) 0.01
2) 0.02
3) 0.03
4) 0.05
Correct Answer: 0.05

Q : 75 - For concreting the surface of the runways, roads and pavements, the aggregate impact value shall not exceed by weight

Options:
1) 0.2
2) 0.25
3) 0.3
4) 0.45
Correct Answer: 0.3

Q : 76 - Pick up the correct statement from the following

Options:
1) Density of normal concrete is about 2400 kg per cubic metre
2) Density of light weight concrete is about 1900 kg per cubic metre
3) Density of heavy concrete is about 3580 kg per cubic metre
4) All option are correct
Correct Answer: All option are correct
Q : 77 - A sample of cement is said to be sound when it does not contain free
Options:
1) lime
2) silica
3) iron oxide
4) alumina
Correct Answer: lime

Q : 78 - Consider the following statements regarding aggregates:
1. Dry aggregates absorb water from the mixing water and thus affect the workability
2. Aggregates containing surface moisture contribute extra
3. The free moisture content in fine aggregate results in reduction of volume
4. The free moisture content in coarse aggregate results in bulking of volume.

Of these statements:
Options:
1) Statements 1 and 2 are correct
2) Statements 2 and 3 are correct
3) Statements 3 and 4 are correct
4) Statements 1 and 4 are correct

Correct Answer: Statements 1 and 2 are correct
Q : 79 - If the permissible compressive and tensile stresses in a single reinforced beam are 50 kg/cm² and 1400 kg/cm² respectively and the modular ratio is 18, the percentage area At of the steel required for an economic section, is

Options:
1) 0.496%
2) 0.596%
3) 0.696%
4) None of these

Correct Answer: 0.696%

Q : 80 - The maximum shear stress (q_max) in a rectangular beam is

Options:
1) 1.25 times the average
2) 1.50 times the average
3) 1.75 times the average
4) 2.0 times the average

Correct Answer: 1.50 times the average

Q : 81 - For M 150 mix concrete, according to I.S. specifications, local bond stress is

Options:
1) 5 kg/cm²
2) 10 kg/cm²
3) 15 kg/cm²
4) 20 kg/cm²

Correct Answer: 10 kg/cm²
Q: 82 –
The properly bent up and hooked bar for resisting diagonal tension is beams is shown in which of the following figures?

विकर्ण तनाव का विरोध करने के लिए उचित रूप से मोड़ा हुआ और हुक बनाया हुआ बार निम्न चित्र में से किसमें दिखाया गया है?

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

Correct Answer: (b)
Q : 84 - Long and short spans of a two way slab are $l_y$ and $l_x$ and load on the slab acting on strips parallel to $l_x$ and $l_y$ be $w_x$ and $w_y$ respectively. According to Rankine Grashoff theory

Options:
1) $w_x/w_y = l_y/l_x$
2) $w_x/w_y = (l_y/l_x)^2$
3) $w_x/w_y = (l_y/l_x)^3$
4) $w_x/w_y = (l_y/l_x)^4$

Correct Answer: $w_x/w_y = (l_y/l_x)^4$

Q : 85 - If the diameter of the main reinforcement in a slab is 16 mm, the concrete cover to main bars is

Options:
1) 12 mm
2) 13 mm
3) 14 mm
4) 16 mm

Correct Answer: 16 mm

Q: 86 - Top bars are extended to the projecting parts of the combined footing of two columns $L$ distance apart for a distance of

Options:
1) 0.1 $L$ from the outer edge of the column
2) 0.1 $L$ from the center edge of column
3) half the distance of projection
4) one-fourth the distance of projection

Correct Answer: 0.1 $L$ from the center edge of column
Q : 87 - A pile of length L carrying a uniformly distributed load W per meter length is suspended at two points, the maximum B.M. at the center of the pile or at the points of suspension is
Options:
1) WL/8
2) WL²/24
3) WL²/47
4) WL²/26
Correct Answer: WL²/47

Q : 88 - If W is the weight of a retaining wall and P is the horizontal earth pressure, the factor of safety against sliding is
Options:
1) 1
2) 1.25
3) 1.5
4) 2
Correct Answer: 1.5
Q : 89 - The deflection of a uniform circular bar of diameter d and length l, which extends by an amount e under a tensile pull W, when it carries the same load at its mid-span is

Options:
1) el/2d
2) (e^2 l)/(3d^2)
3) (el^2)/(3d^2)
4) √e/(3d^2)

Correct Answer: (el^2)/(3d^2)

Q : 90 - The maximum deflection due to a uniformly distributed load w/unit length over entire span of a cantilever of length l and of flexural rigidity EI, is

Options:
1) WL^3/3EI
2) WL^4/3EI
3) WL^4/8EI
4) WL^4/12EI

Correct Answer: WL^4/8EI
Q : 91 - If the normal stresses due to longitudinal and transverse loads on a bar are $\sigma_1$ and $\sigma_2$ respectively, the tangential component of the stress on an inclined plane through $\theta_0$, the longitudinal load is

Options:
1) $\sigma_1 \sin \theta_0 + \sigma_2 \cos \theta_0$
2) $\sigma_1 \sin 2\theta_0 + \sigma_2 \cos 2\theta_0$
3) $(\sigma_1 - \sigma_2)(\sin \theta_0)/2$
4) $(\sigma_1 + \sigma_2)(\sin \theta_0/2)

Correct Answer: $(\sigma_1 - \sigma_2)(\sin \theta_0)/2$

Q : 92 - The moment of inertia of a triangular section (height h, base b) about its base is

Options:
1) $(bh^2)/12$
2) $(b^2h)/12$
3) $(bh^3)/12$
4) $(b^3h)/12$

Correct Answer: $(bh^3)/12$

Q : 93 –
In the truss shown below, the force in the member $AC$ is

"नीचे दिखाए गए ट्रस में, सदस्य AC में निकान में से कौनसा बल है?"

![Diagram of a truss with members AB, BC, CD, and AD, with forces 10t and 5t at points B and D, and angles 60° at points A and C.]
Options:
1) 6.25 t compressive
2) 8.75 t tensile
3) \(\frac{8.75}{\sqrt{3}}\) t tensile
4) \(\frac{8.75}{\sqrt{3}}\) t compressive
**Correct Answer:** \(\frac{8.75}{\sqrt{3}}\) t compressive

Q : 94 –
The force in \(BC\) of the truss shown in the figure below is

नीचे दिखाए गए ट्रस में, सदिश \(BC\) में किसका बल है?

![Truss Diagram](image)

Options:
1) 3.0 t compression
2) 3.0 t tension
3) \(\frac{3\sqrt{3}}{2}\) t tension
4) \(\frac{3\sqrt{3}}{2}\) t compression
**Correct Answer:** \(\frac{3\sqrt{3}}{2}\) t tension
Q : 95 - If a solid shaft (diameter 20 cm, length 400 cm, N = 0.8 \times 10^5 \text{ N/mm}^2) when subjected to a twisting moment, produces maximum shear stress of 50 \text{ N/mm}^2, the angle of twist in radians is

Options:
1) 0.001
2) 0.002
3) 0.0025
4) 0.004
Correct Answer: 0.0025

Q : 96 - The load on a spring per unit deflection is called

Options:
1) stiffness
2) proof resilience
3) proof stress
4) proof load
Correct Answer: stiffness

Q : 97 - In case of a simply supported rectangular beam of span L and loaded with a central load W, the length of elasto-plastic zone of the plastic hinge is

Options:
1) L/2
2) L/3
3) L/4
4) L/5
Correct Answer: L/3
There are two hinged semicircular arches A, B and C of radii 5 m, 7.5 m, and 10 m respectively and each carries a concentrated load W at their crowns. The horizontal thrust at their supports will be in the ratio of

Options:
1) 1 : 1 ½ : 2
2) 2 : 1 ½ : 1
3) 1 : 1 : 2
4) None of these

Correct Answer: 1 : 1 : 2

For determining the support reactions at A and B of a three-hinged arch, points B and C are joined and produced to intersect the load line at D and a line parallel to the load line through A at D'. Distances AD, DD' and AD' when measured were 4 cm, 3 cm and 5 cm respectively. The angle between the reactions at A and B is

Options:
1) 30o
2) 45o
3) 60o
4) 90o

Correct Answer: 90o
Q : The equivalent length of a column of length L having one end fixed at the other end free is

Options:
1) 2L
2) L
3) L/2
4) L/√2

Correct Answer: 2L