cgpsc

CGPSC State Engineering Services Exam 27th April Shift 1

Notations :

1. Options shown in green color and with ✔ icon are correct.
2. Options shown in red color and with ✖ icon are incorrect.

Question Paper Name: SES Civil Engg Part 1 Actual
Subject Name: SES Civil Engg Part 1
Duration: 150
Number of Questions: 150

Revisit allowed for view? : No
Revisit allowed for edit? : No

Civil Engg

Number of Questions: 150

Question Number : 1
Correct : 2 Wrong : 1

While calculating the elastic modulus, the stress difference between two points under consideration is 40 MPa and the strain difference is 2000 x 10^{-6} The elastic modulus of this material in GPa is

Options :

A. ✖ 20000

B. ✖ 0.02

C. ✖ 2000000

D. ✔ 20

E. ✖ 2000

Question Number : 2
Correct : 2 Wrong : 1

In a stress-strain plot, the following points appear: a) Limit of proportionality, b)Elastic limit; c) Yield point; d)Ultimate strength and e)point of rupture. The correct sequence of occurrence of these points is

Options :

A. ✔ a-b-c-d-e

B. ✖ e-d-c-b-a

C. ✖ a-c-b-d-e

D. ✖ b-a-c-d-e

E. ✖ a-e-d-b-c

Question Number : 3
Correct : 2 Wrong : 1

When a material is axially loaded for a long time, it develops certain type of additional strain called as

Options :

A. ✖ Secondary strain

B. ✖ Axial strain

C. ✖ Radial strain

D. ✔ Creep

E. ✖ Shrinkage

Question Number : 4
Correct : 2 Wrong : 1

A rod made of Aluminium alloy (E = 72 GPa) has length 0.5 m and diameter 10 mm. The tensile stiffness (N/m) of this rod is

Options :

A. ✖ $18\pi \times 10^5$

B. ✔ $36\pi \times 10^5$

C. ✖ $9\pi \times 10^5$

D. ✖ $12\pi \times 10^5$

E. ✖ $36\pi \times 10^6$

Question Number : 5
Correct : 2 Wrong : 1

A circular silicon carbide rod exhibiting an elastic modulus of 450 GPa is under a uniaxial load of 450 MPa. The strain energy density stored in this specimen is

Options :

A. ✔ 225 Nmm/ mm^3

B. ✖ 0.225 Nmm/mm^3

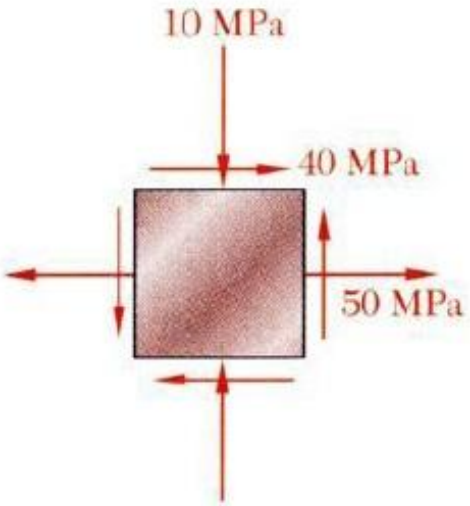
C. ✖ 2.25 Nmm/mm^3

D. ✖ 22.5 Nmm/mm^3

E. ✖ 225 kNmm/mm^3

Question Number : 6
Correct : 2 Wrong : 1

The state of plane stress at a point is represented by the stress element below. Assuming tensile force positive and compressive force negative, the principal stresses (MPa) are



Options :

A. ✖ 50, -50

B. ✔ 70, -30

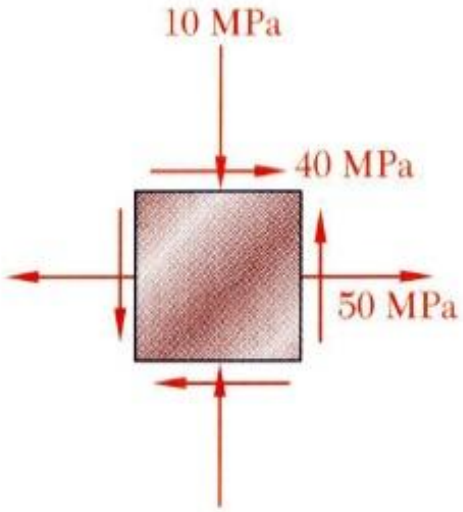
C. ✖ -70, -30

D. ✖ 70, 30

E. ✖ 30, 70

Question Number : 7
Correct : 2 Wrong : 1

For the state of stress shown in the following figure, if Mohr's circle is to be plotted. If the diameter of the Mohr's circle is d and the principal stresses are p and q (magnitudes only), the values of d, p & q (in MPa units) respectively are



Options :

A. ✖ 50, 70, 30

B. ✔ 100, 70, 30

C. ✖ 90, 70, 30

D. ✖ 100, 100, 30

E. ✖ 100, 40, 0

Question Number : 8
Correct : 2 Wrong : 1

The effective length for a fixed-free (one end fixed and other is free or supporting a load) type of column of length L as used in calculating the Euler's crippling load is

Options :

A. ✖ L

B. ✖ 0.5L

C. ✖ 0.67L

D. ✖ 0.85L

E. ✔ 2L

Question Number : 9
Correct : 2 Wrong : 1

If the crushing load of a column is 3000 kN and the Euler load is 2000 kN, then the Rankine load is

Options :

A. ✖ 12000 kN

B. ✔ 1200 kN

C. ✖ 3000 kN

D. ✖ 2000 kN

E. ✖ 1000 kN

Question Number : 10
Correct : 2 Wrong : 1

In bending of beam, the point where no bending moment occurs is known as

Options :

A. ✖ Point of zero shear

B. ✖ Point of maximum shear

C. ✔ Point of contraflexure

D. ✖ Point of buckling

E. ✖ Yield point

Question Number : 11
Correct : 2 Wrong : 1

In the adjacent beam loaded uniformly at an intensity of a/unit length, the maximum bending moment is

Options :

A. ✔ $ax^2/2$

B. ✖ $ax^2/4$

C. ✖ $ax^2/8$

D. ✖ $2ax^2$

E. ✖ $4ax^2$

Question Number : 12
Correct : 2 Wrong : 1

In the adjacent beam, the maximum shear stress is

Options :

A. ✔ ax

B. ✖ 2ax

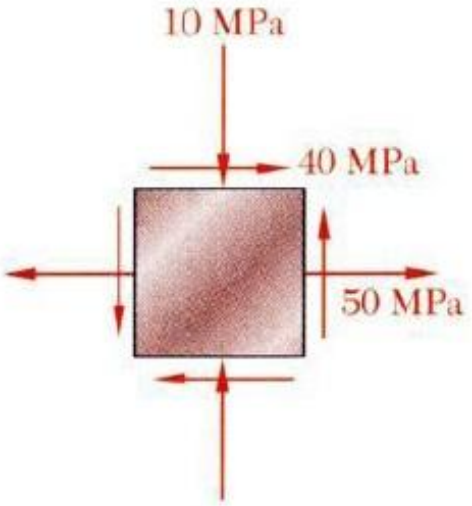
C. ✖ ax/2

D. ✖ ax/4

E. ✖ 4ax

Question Number : 13
Correct : 2 Wrong : 1

In the adjacent beam, the magnitude of shear stresses at point A is



Options :

A. ✖ 12 kN

B. ✖ 8 kN

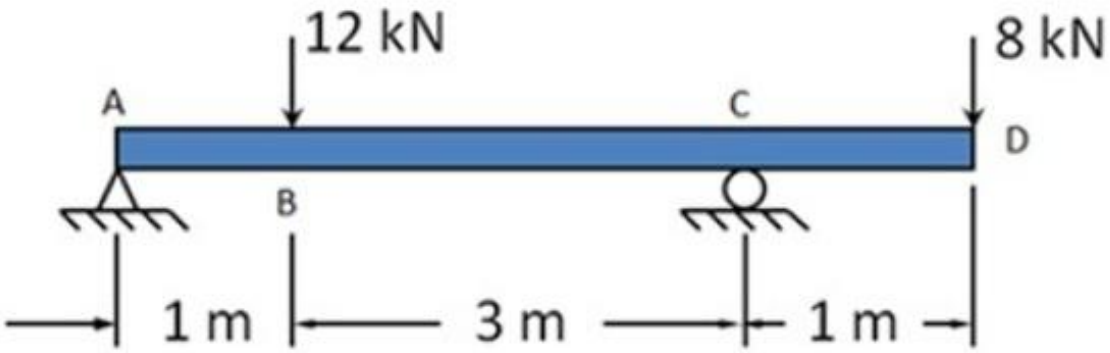
C. ✖ 5 kN

D. ✖ 20 kN

E. ✔ 7 kN

Question Number : 14
Correct : 2 Wrong : 1

In the adjacent beam, the point of contraflexure is at a distance of



Options :

A. ✖ 2.4 m towards right of B

B. ✖ At B

C. ✖ At C

D. ✔ At 2.4 m from A

E. ✖ At the midpoint of AD

Question Number : 15
Correct : 2 Wrong : 1

According to the principle of virtual work, if a system of rigid bodies is in equilibrium under the action of a set of forces, then the work done by those forces during a small virtual displacement of the system must be equal to

Options :

A. ✖ Infinite

B. ✔ Zero

C. ✖ Unity

D. ✖ A non-zero constant

E. ✖ always changing

Question Number : 16
Correct : 2 Wrong : 1

A glass rod having an elastic modulus of 90 GPa and Poisson's ratio of 0.2 will have its bulk modulus (in GPa)

Options :

A. ✔ 50

B. ✖ 108

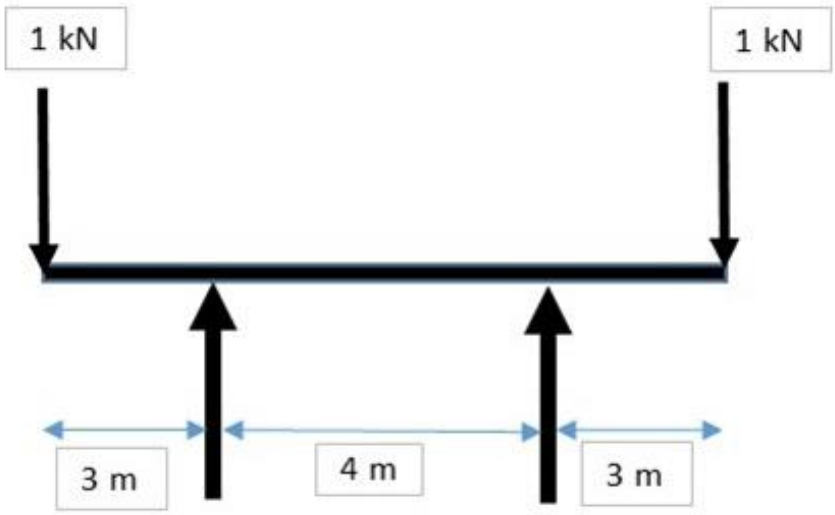
C. ✖ 270

D. ✖ 91

E. ✖ 100

Question Number : 17
Correct : 2 Wrong : 1

The cross section of the beam has $I_{xx} = 3 \times 10^6$ mm^4 and the it is subjected to the loading shown in the figure. The neutral axis is situated at 70 mm from the extreme fibre. The maximum tensile stress in the beam would be



Options :

A. ✔ 70 MPa

B. ✖ 7 GPa

C. ✖ 7 MPa

D. ✖ 70 kN/mm2

E. ✖ 70 GPa

Question Number : 18
Correct : 2 Wrong : 1

A prismatic bar has a cross-section of 25 mm by 50 mm and a length of 2000 mm. Under an axial load of 100 kN, the measured elongation of the bar is 2 mm. The tensile stress and % strain in the bar are

Options :

A. ✔ 80 MPa and 0.1%

B. ✖ 0.08 GPa and 1.0%

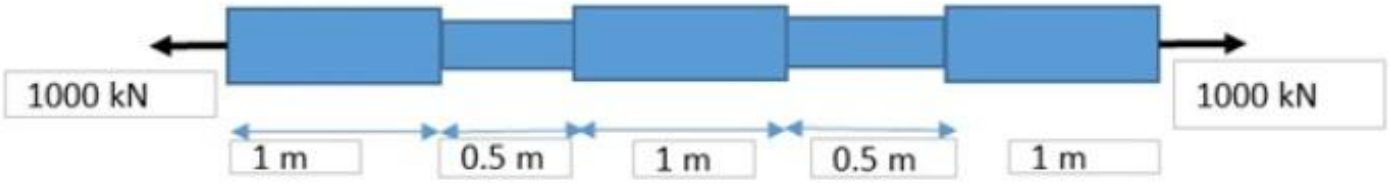
C. ✖ 80 N/mm2 and 1%

D. ✖ 800 MPa and 0.01%

E. ✖ 8 kN/mm2 and 0.001%

Question Number : 19
Correct : 2 Wrong : 1

A metal bar of variable cross section as shown and length is subjected to 1000 kN of force. The area of 1 m long section is 10000 sq.mm and that of 500 mm long section is 5000 sq.mm. Assuming the elastic modulus of 200 GPa, the total elongation of the bar will be



Options :

A. ✔ 2.5 mm

B. ✖ 0.025 mm

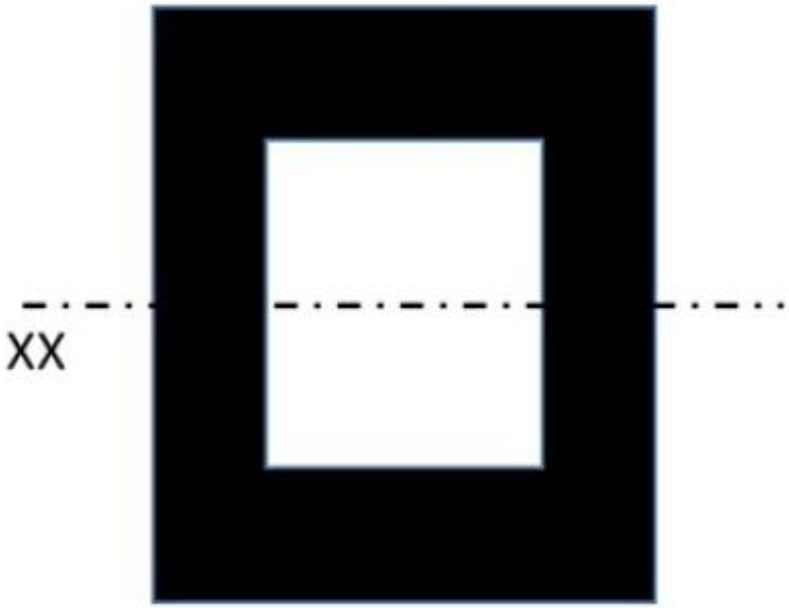
C. ✖ 0.25 mm

D. ✖ 25 mm

E. ✖ 1.5 mm

Question Number : 20
Correct : 2 Wrong : 1

A rectangular hollow section with external dimensions 4 cm by 4 cm and thickness of 1 cm will have its moment of inertia about centroidal X-X axis



Options :

A. ✖ $21.33\ cm^4$

B. ✖ $1.33\ cm^4$

C. ✖ $256\ cm^4$

D. ✔ $20\ cm^4$

E. ✖ $2.0\ cm^4$

Question Number : 21
Correct : 2 Wrong : 1

A solid circular shaft of diameter 8 mm is exposed to a maximum torque of 64 N-m. What is the shear stress in the shaft?

Options :

A. ✖ 2000π

B. ✔ 2000/π

C. ✖ 2/π

D. ✖ 20/π

E. ✖ 2π

Question Number : 22
Correct : 2 Wrong : 1

When a body resting on an inclined surface just begins to slide down the inclined plane under the action of its own weight, then the angle of inclination of the the inclined plane is

Options :

A. ✔ Greater than the angle of repose

B. ✖ Less than the angle of repose

C. ✖ Equal to the angle of repose

D. ✖ Vertical

E. ✖ Horizontal

Question Number : 23
Correct : 2 Wrong : 1

Young's modulus of a perfectly rigid body is

Options :

A. ✖ Unity

B. ✖ Negative

C. ✖ Zero

D. ✔ Infinity

E. ✖ A non-zero, finite constant

Question Number : 24
Correct : 2 Wrong : 1

If a simply supported beam with elastic modulus & MI, E and I and of span length L carries a point load W at the mid-span; the downward deflection under the load will be

Options :

A. ✖ $WL^3/3EI$

B. ✖ $WL^3/8EI$

C. ✔ $WL^3/48EI$

D. ✖ $WL^3/12EI$

E. ✖ $2WL^3/9EI$

Question Number : 25
Correct : 2 Wrong : 1

A thin walled cylindrical pressure vessel having radius 0.6 m and wall thickness 24 mm is subjected to an internal pressure of 1000 kP. The hoop stress (MPa) developed is

Options :

A. ✖ 2.5

B. ✖ 0.25

C. ✔ 25

D. ✖ 0.025

E. ✖ 22.5

Question Number : 26
Correct : 2 Wrong : 1

A solid circular shaft is to transmit a power, P kW, when turning N revolutions per min. For a given maximum shear stress, the shaft diameter will be proportional to

Options :

A. ✔ $(P/N)^{0.31}$

B. ✖ $(P/N)^{0.33}$

C. ✖ $(P/N)^{0.67}$

D. ✖ $(P/N)^{3}$

E. ✖ $(P/N)^{0.5}$

Question Number : 27
Correct : 2 Wrong : 1

Isotropy of a material means

Options :

A. ✔ behavior of the material having same properties in all directions

B. ✖ the enthalpy of the material remains same over time

C. ✖ the material remains homogeneous when heated

D. ✖ the temperature within the material remains constant when heated

E. ✖ the properties of the material are different in different directions

Question Number : 28
Correct : 2 Wrong : 1

A purely compression member (with negligible eccentricity) having its effective length equal to 9 times its radius of gyration would be treated as

Options :

A. ✔ Pedestal

B. ✖ Strut

C. ✖ Long column

D. ✖ Rotating shaft

E. ✖ Member subjected to bending and shear

Question Number : 29
Correct : 2 Wrong : 1

A steel plate of width 120 mm and of thickness 20 mm is bent into a circular arc of radius 10 m. If Elastic modulus of the section is 200 GPa, then the maximum stress induced in the beam is

Options :

A. ✔ 200 MPa

B. ✖ 20 GPa

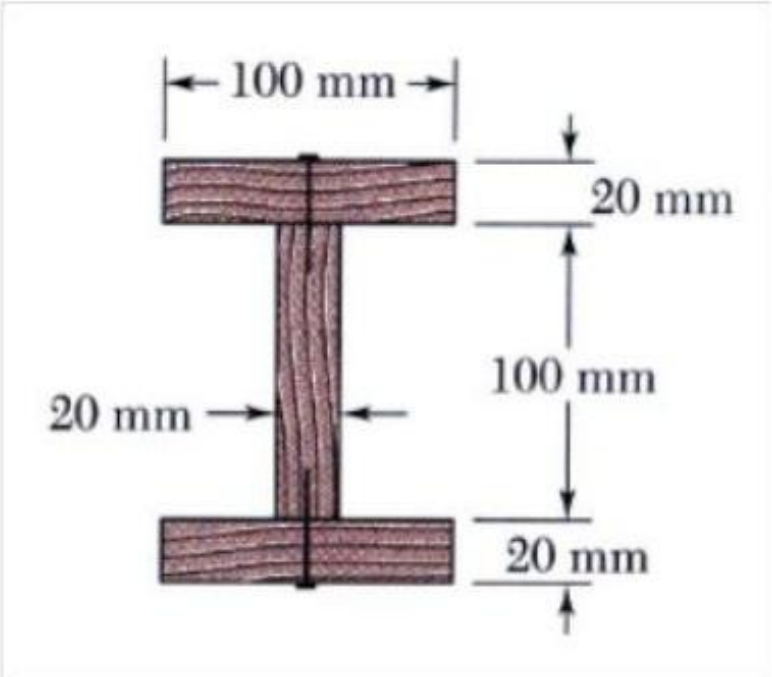
C. ✖ 20 GPa

D. ✖ 180 MPa

E. ✖ 110 MPa

Question Number : 30
Correct : 2 Wrong : 1

The beam shown in the following figure is made of three planks nailed together. The nailing is done at a spacing of 25 mm. If the vertical shear in the beam is 640 N, and the moment of inertia (I) is 16 x 10^-6 m^4, the shear flow (in N/m) on the lower surface of the upper plank will be



Options :

A. ✖ 3600

B. ✖ 5200

C. ✖ 4500

D. ✔ 4800

E. ✖ 4550

Question Number : 31
Correct : 2 Wrong : 1

A 6.4 m long simply wrought iron beam carries a point load of 48 kN at its mid-point. The moment of inertia is 80x10^6 mm^4. If the elastic modulus is 192 Gpa, then the deflection at the mid-point of the beam is

Options :

A. ✖ 15.06

B. ✖ 16.26

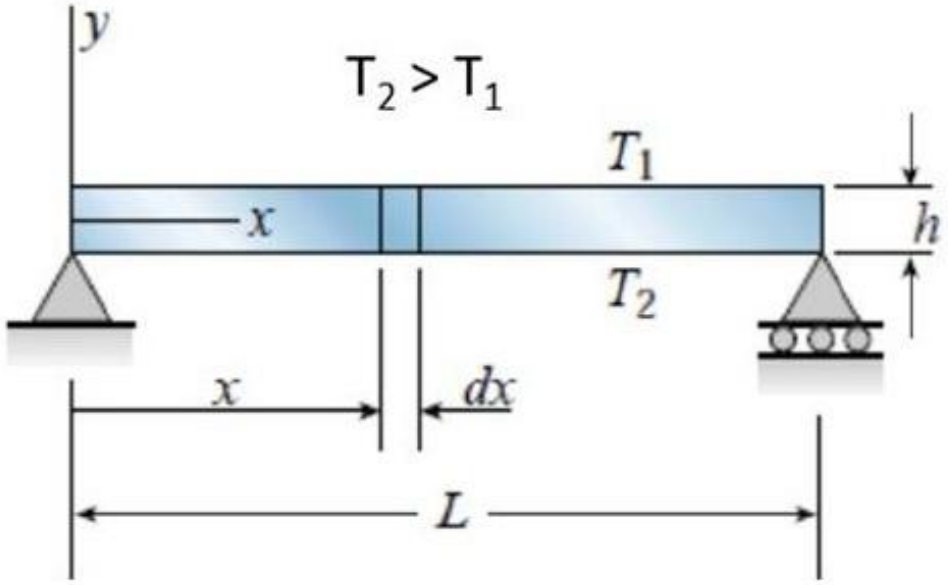
C. ✖ 17.3

D. ✖ 17.8

E. ✔ 17.06

Question Number : 32
Correct : 2 Wrong : 1

The differential equation of the deflection curve generated due to the temperature difference between the bottom and top fibers for the beam loaded as shown in the following figure can be given as (assume α as the coefficient of thermal expansion)



Options :

A. ✖ α(T1-T2 x T1)/h

B. ✖ α(T1-T2)/h

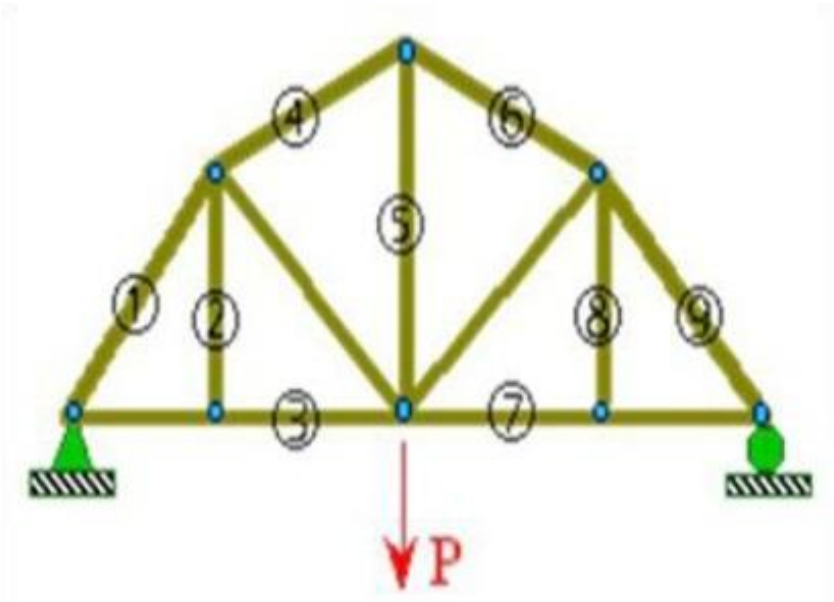
C. ✖ α(T1 x T2-T2)/h

D. ✔ α(T2-T1)/h

E. ✖ α(T1 x T2-T2)/(T1 x h)

Question Number : 33
Correct : 2 Wrong : 1

The zero-force members in the truss shown are



Options :

A. ✖ 1 & 9

B. ✔ 2 & 8

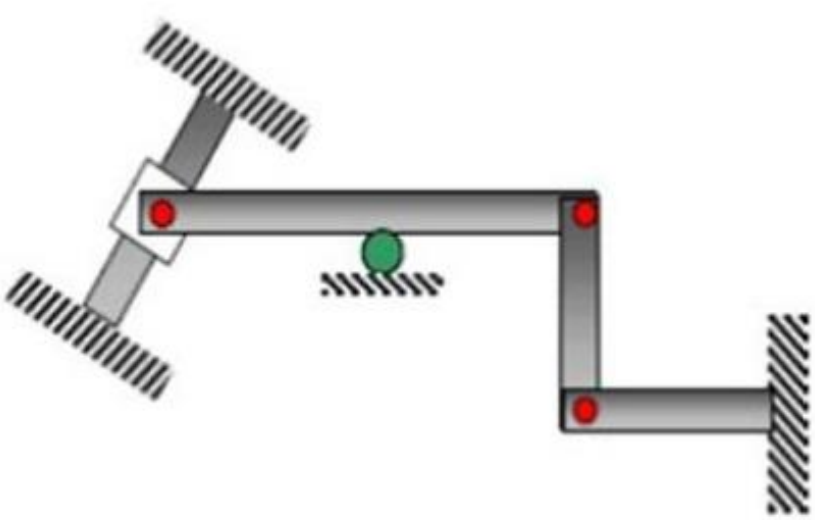
C. ✖ 3 & 7

D. ✖ 4 & 6

E. ✖ None of the members are zero force

Question Number : 34
Correct : 2 Wrong : 1

The following structure is statically indeterminate to the degree of



Options :

A. ✔ Zero

B. ✖ One

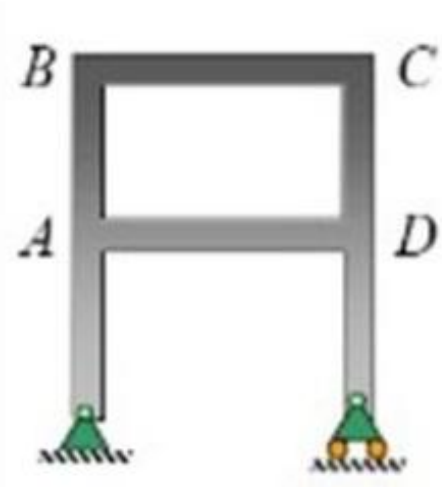
C. ✖ Two

D. ✖ Three

E. ✖ Five

Question Number : 35
Correct : 2 Wrong : 1

The adjacent frame is indeterminate to the degree of



Options :

A. ✖ One

B. ✖ Two

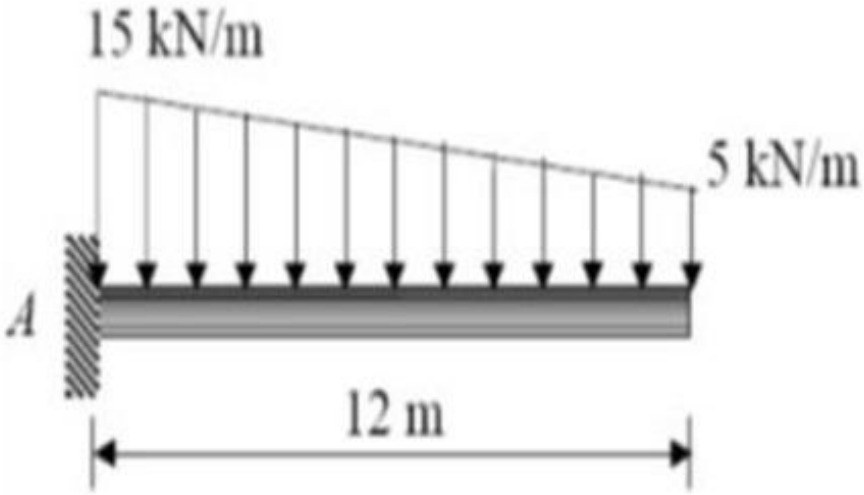
C. ✔ Three

D. ✖ Five

E. ✖ Zero

Question Number : 36
Correct : 2 Wrong : 1

The beam is loaded as shown in the figure. The magnitude of bending moment at A is



Options :

A. ✖ 120 kN-m

B. ✔ 600 kN-m

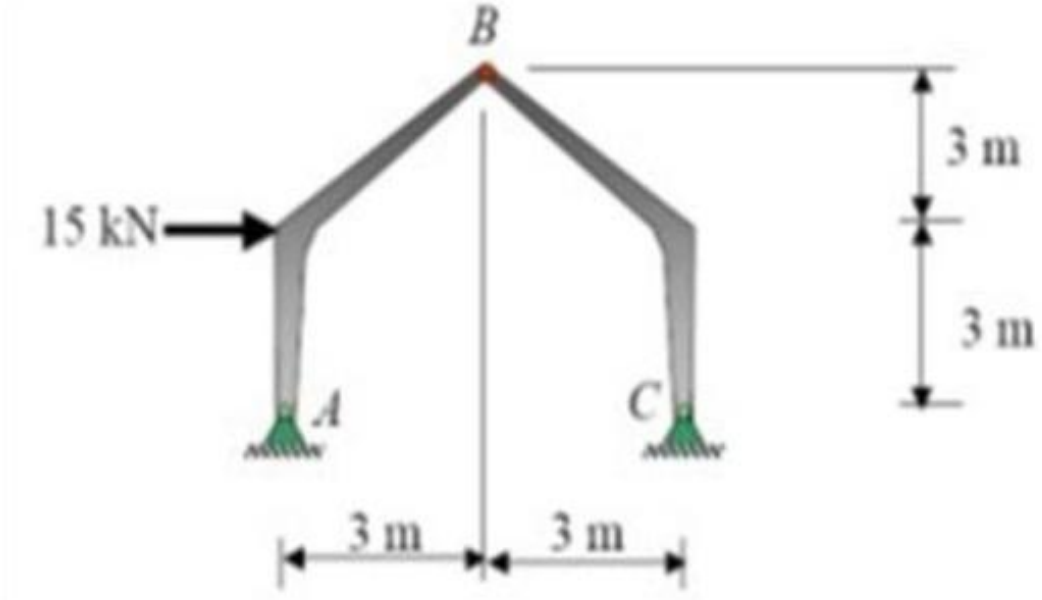
C. ✖ 240 kN-m

D. ✖ 180 kN-m

E. ✖ 60 kN-m

Question Number : 37
Correct : 2 Wrong : 1

For a pin jointed frame at points A, B and C, the horizontal component of reaction at A is



Options :

A. ✖ 11.25 kN acting towards right

B. ✔ 11.25 kN acting towards left

C. ✖ 15 kN acting towards right

D. ✖ 15 kN acting towards left

E. ✖ 7 kN acting towards left

Question Number : 38
Correct : 2 Wrong : 1

Where maximum bending moment occurs in a beam, the shear force at that location is

Options :

A. ✔ Zero

B. ✖ Maximum

C. ✖ Acts in a vertically upward direction

D. ✖ Acts in a vertically downward direction

E. ✖ Has a non-zero, non-negative value

Question Number : 39
Correct : 2 Wrong : 1

For the conjugate beam method to be applicable, which of the following rules is not followed

Options :

A. ✖ The original beam must be statically determinate

B. ✖ The conjugate beam and original beam must be made the same length

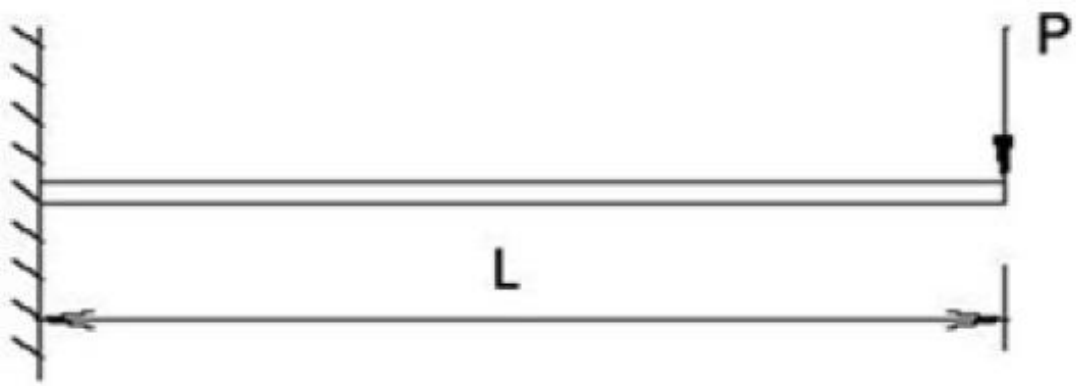
C. ✖ The conjugate beam must be in static equilibrium

D. ✖ No other loading should be applied to the conjugate beam other than the elastic weight,

E. ✔ The maximum indeterminacy can be upto 5 degree

Question Number : 40
Correct : 2 Wrong : 1

The slope and deflection of the free-end of a cantilever beam shown in the figure respectively are



Options :

A. ✔ $PL^2/2EI, PL^3/3EI$

B. ✖ $PL^2/4EI, PL^3/3EI$

C. ✖ $PL^2/2EI, PL^3/6EI$

D. ✖ $PL^2/4EI, PL^3/6EI$

E. ✖ $PL^2/4EI, PL^3/9EI$

Question Number : 41
Correct : 2 Wrong : 1

A retaining wall 10 m high with vertical back retains moist sand with a horizontal surface. If unit weight of sand is 15 kN/cum and the angle of internal friction is 30 degree, the total active pressure (in kN) experienced by the wall per m run is

Options :

A. ✖ 25

B. ✖ 2250

C. ✔ 250

D. ✖ 23

E. ✖ 83.33

Question Number : 42
Correct : 2 Wrong : 1

If the strain energy of a deformed elastic body is represented as a function of the displacements d1, d2,..., a partial derivative of that function with respect to any chosen displacement gives the corresponding force. This statement/ principle is called as

Options :

A. ✖ Principle of strain energy

B. ✖ Maxwell's law of reciprocal deflections

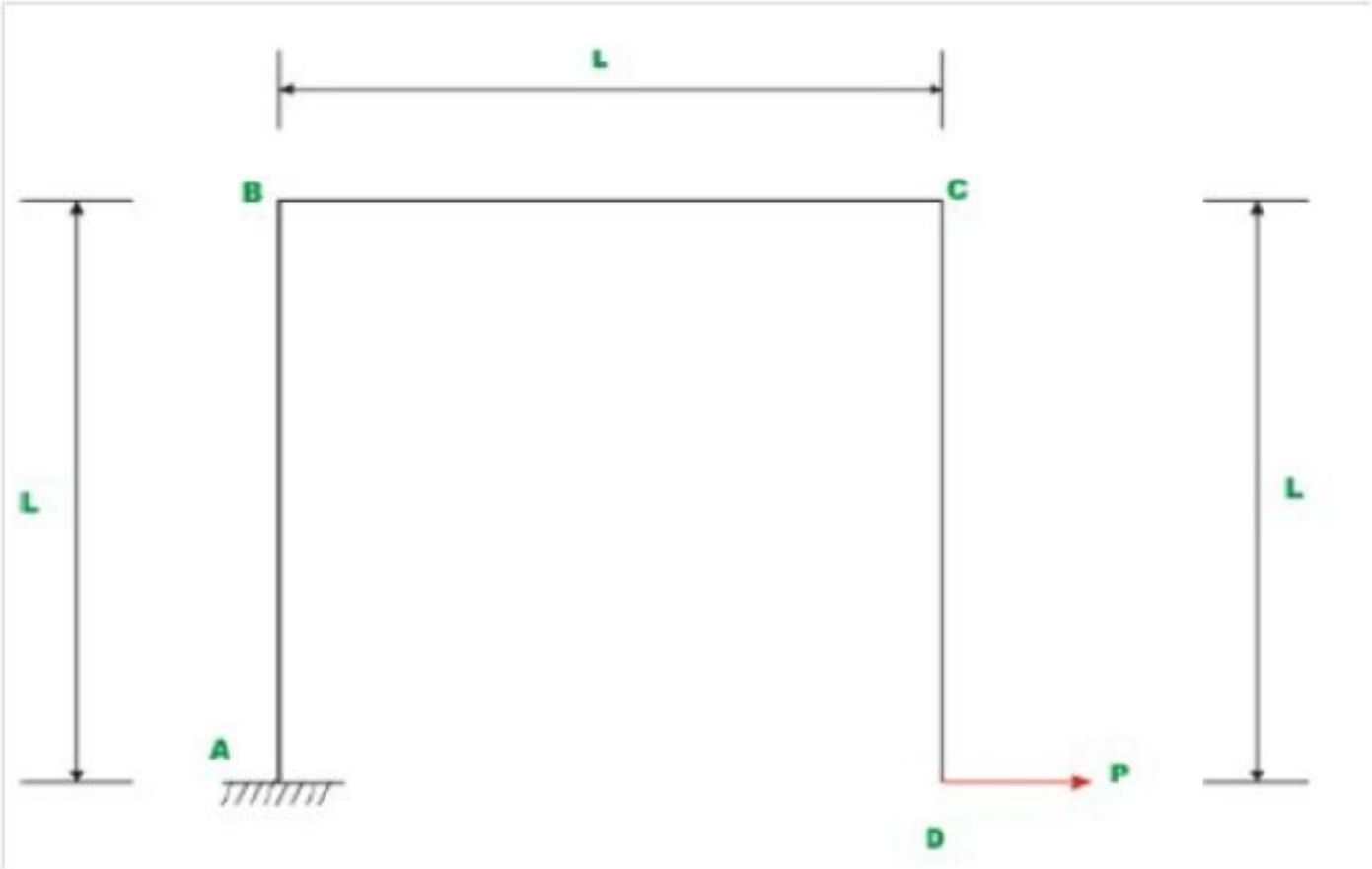
C. ✖ Conjugate beam/ truss principle

D. ✔ First theorem of Castigliano

E. ✖ Bette's law

Question Number : 43
Correct : 2 Wrong : 1

Neglecting axial deformations, and assuming EI to be constant throughout the frame sections the horizontal displacement at D is



Options :

A. ✖ $PL^3/(3EI)$

B. ✔ $5PL^3/(3EI)$

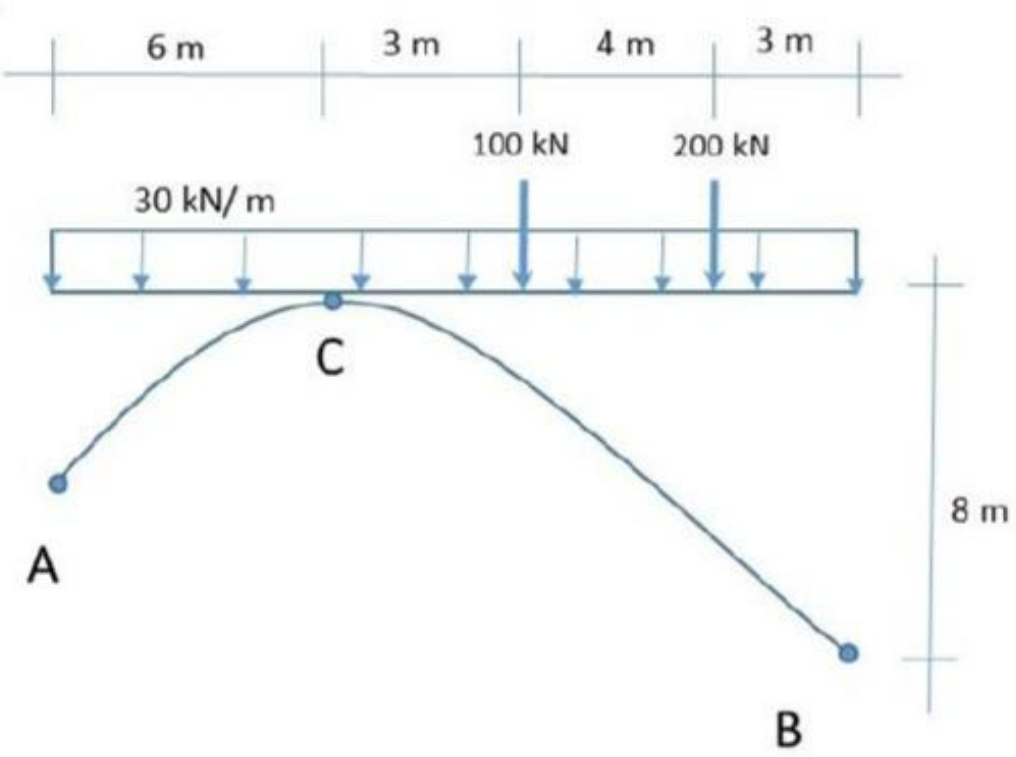
C. ✖ $PL^3/(3EI)$

D. ✖ $2PL^3/(3EI)$

E. ✖ $7PL^3/(3EI)$

Question Number : 44
Correct : 2 Wrong : 1

The magnitudes of the horizontal thrusts (in kN) at A and B in a three hinged arch shown below is approximately equal to



Options :

A. ✔ 252

B. ✖ 258

C. ✖ 521

D. ✖ 231

E. ✖ 201

Question Number : 45
Correct : 2 Wrong : 1

Which of the following does not apply to statically determinate structures?

Options :

A. ✔ Stresses are caused due to temperature variations

B. ✖ No stresses are caused due to lack of fit

C. ✖ Banding moment at a section is independent of cross sectional area of the components

D. ✖ Force in a component is independent of the material

E. ✖ Conditions of the equilibrium are sufficient to fully analyze the structure

Question Number : 46
Correct : 2 Wrong : 1

A two-dimensional structure in general is classified as a statically indeterminate structure if it cannot be analyzed by which of the following equations of equlibrium

Options :

A. ✖ Sum of vertical forces is zero

B. ✖ Sum of horizontal forces is zero

C. ✖ Sum of moments of all the forces about any point in the plane is zero

D. ✔ I, ii & iii above

E. ✖ I & iii above

Question Number : 47
Correct : 2 Wrong : 1

A simply supported beam with rectangular cross section is subjected to a central concentrated load. If the width and depth of the beam are doubled, while retaining the same elastic properties, then the deflection at the center of the beam w.r.t. the original deflection will be reduced to

Options :

A. ✖ 50%

B. ✖ 25%

C. ✖ 75%

D. ✔ 12.50%

E. ✖ 6.25%

Question Number : 48
Correct : 2 Wrong : 1

The moment distribution method is best suited for

Options :

A. ✖ Inderminate pin jointed truss

B. ✖ space frames

C. ✖ eccentric columns

D. ✔ rigid frames

E. ✖ trussed beams

Question Number : 49
Correct : 2 Wrong : 1

The ratio of the stiffness of a member to the total stiffness of all the members meeting at a joint is called as

Options :

A. ✖ Relative stiffness of the structure

B. ✔ Distribution factor for that member

C. ✖ Carry over factor for that member

D. ✖ Absolute stiffness of that member

E. ✖ End correction

Question Number : 50
Correct : 2 Wrong : 1

Two wheel loads 80 kN and 200 kN, spaced 2 m apart move on a girder of span 16 m. If any wheel can lead the other, the maximum positive and negative shear force at a section 4 m from the left end respectively will be

Options :

A. ✖ 120, -60

B. ✖ 120, -120

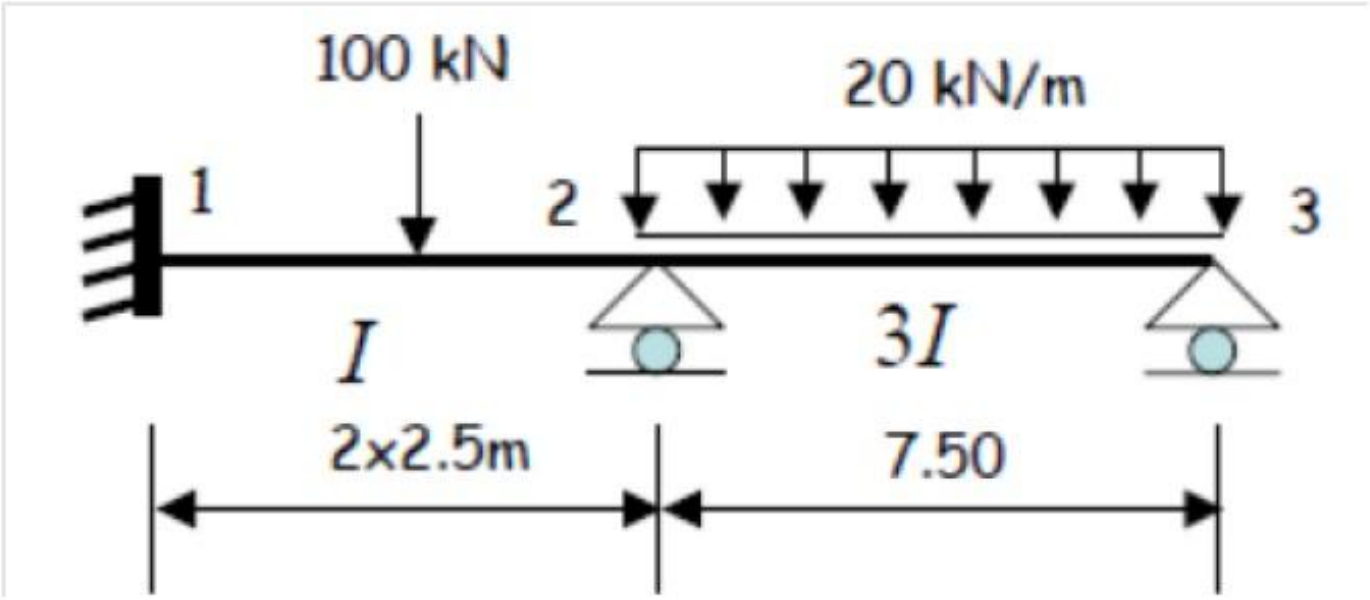
C. ✔ 200, -60

D. ✖ 60, -200

E. ✖ 200, -200

Question Number : 51
Correct : 2 Wrong : 1

In the continuous beam shown in the following figure, the support moment M32 (in kN-m) is



Options :

A. ✖ 93.8

B. ✖ 46.9

C. ✖ 62.5

D. ✖ -93.5

E. ✔ 0.0

Question Number : 52
Correct : 2 Wrong : 1

A cantilever beam of length L (EI being constant throughout the section) is subjected to a couple M at the free end. The slope and deflection at the free end will be given by

Options :

A. ✔ ML/EI & ML^2/2EI

B. ✖ 2ML/EI & ML^2/2EI

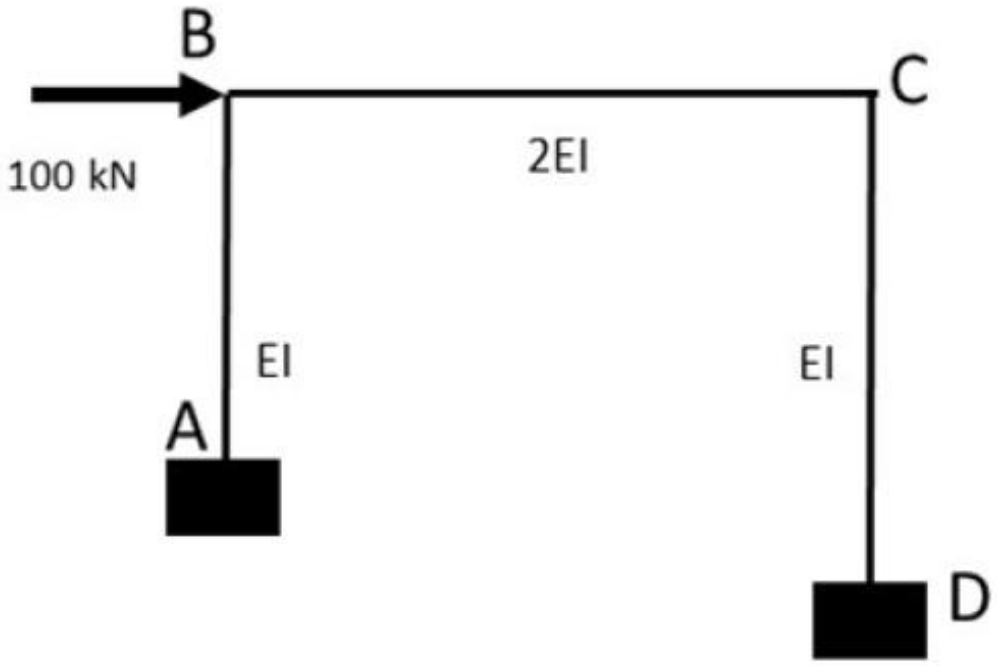
C. ✖ ML/EI & ML^2/4EI

D. ✖ ML/EI & ML^2/8EI

E. ✖ ML^3/EI & ML^2/2EI

Question Number : 53
Correct : 2 Wrong : 1

The slope deflection equation at B of element BC in the following frame is (AB = 6 m and BC=CD=8m)



Options :

A. ✖ Mbc = 0.5EI (2θc - θb)

B. ✖ Mbc = 0.5EI (2θb - θc)

C. ✔ Mbc = 0.5EI (2θb + θc)

D. ✖ Mbc = 0.5EI (2θc + θb)

E. ✖ Mbc = 0.33EI (2θc - θb)

Question Number : 54
Correct : 2 Wrong : 1

The number of unknowns to be determined in the stiffness method is equal to

Options :

A. ✖ static indeterminacy

B. ✔ kinematic indeterminacy

C. ✖ difference of static and kinematic indeterminacy

D. ✖ sum of static and kinematic indeterminacy

E. ✖ static indeterminacy/kinematic indeterminacy

Question Number : 55
Correct : 2 Wrong : 1

A cable of span 100 m and a dip of 5 m is subjected to a temperature rise of 15 degree C. The increase in dip (in mm) due to rise in temperature is

Options :

A. ✖ 27.5

B. ✖ 57.5

C. ✖ 62.5

D. ✔ 67.5

E. ✖ 52.5

Question Number : 56
Correct : 2 Wrong : 1

In column analogy method, the area of an analogous column for a fixed beam of span length L and flexural rigidity is

Options :

A. ✖ 0.25L/(EI)

B. ✖ 0.5L/(EI)

C. ✖ 0.75L/(EI)

D. ✖ 1.25L/(EI)

E. ✔ L/(EI)

Question Number : 57
Correct : 2 Wrong : 1

A 8 m long live load of intensity 50kN/m moves on a simply supported girder of span length 10 m. Find the maximum bending moment (in kN-m) which can occur at a section 4 m from the left end

Options :

A. ✖ 276

B. ✔ 576

C. ✖ 354

D. ✖ 226

E. ✖ 426

Question Number : 58
Correct : 2 Wrong : 1

A cable resists external loads by virtue of

Options :

A. ✖ bending

B. ✖ compression

C. ✖ compression and bending

D. ✖ torsion

E. ✔ tension

Question Number : 59
Correct : 2 Wrong : 1

The flexibility coefficient for a propped cantilever beam (EI = constant throughout the length) loaded with a uniformly distributed load w /m is given by

Options :

A. ✔ $L^3/(3EI)$

B. ✖ $L^3/(EI)$

C. ✖ $L^3/(2EI)$

D. ✖ $L^3/(4EI)$

E. ✖ $L^3/(6EI)$

Question Number : 60
Correct : 2 Wrong : 1

Bending moment at any section in a conjugate beam gives in the actual beam

Options :

A. ✖ slope

B. ✖ curvature

C. ✔ deflection

D. ✖ bending moment

E. ✖ shear force

Question Number : 61
Correct : 2 Wrong : 1

In the plastic theory used for steel, which of the following assumptions are not applicable

Options :

A. ✖ Steel is ductile and can undergo plastic deformation without rupturing

B. ✔ Elastic deformation is taken into account

C. ✖ All connections provide satisfactory continuity so as to transmit the plastic moment

D. ✖ Steel is assumed to be an ideal elastic-plastic material

E. ✖ Plane sections before bending remain plain after bending

Question Number : 62
Correct : 2 Wrong : 1

For a simply supported steel beam of span L and carrying a point load at the mid-length, at the stage of collapse, what part of the beam is fully elastic

Options :

A. ✔ L/3 from each end

B. ✖ L/4 from each end

C. ✖ L/5 from each end

D. ✖ L/6 from each end

E. ✖ No part of the beam remains elastic at collapse

Question Number : 63
Correct : 2 Wrong : 1

The maximum compressive strain according to limit state design as per IS 456, at the highly compressed extreme fibre in concrete subjected to axial compression and bending and when there is no tension on the section shall be

Options :

A. ✖ 0.002

B. ✖ 0.0035

C. ✖ $0.002-0.75e_{ext;}$ e_{ext} is the strain at the least compressed fibre

D. ✔ $0.0035-0.75e_{ext}$

E. ✖ 0.0002

Question Number : 64
Correct : 2 Wrong : 1

Which of the following pre-stressing system is employed in manufacturing concrete sleepers for railways?

Options :

A. ✖ Post-tensioning

B. ✖ Partial pre-stressing

C. ✔ Pre-tensioning

D. ✖ Pre-tensioning followed by post-tensioning

E. ✖ Post-tensioning with accelerated curing

Question Number : 65
Correct : 2 Wrong : 1

According to IS 1343, the limit state of serviceability of prestressed concrete sections shall satisfy

Options :

A. ✖ Deflection and cracking

B. ✖ Cracking and maximum compression

C. ✔ Cracking, deflection and maximum compression

D. ✖ Cracking, deflection and minimum compression

E. ✖ Deflection and maximum compression

Question Number : 66
Correct : 2 Wrong : 1

In the working stress method, the modular ratio, m has a value of 280/(3 x permissible compressive stress). This expression for m

Options :

A. ✔ partially takes into account the long-term effects such as creep

B. ✖ fully takes into account the long-term effects such as creep

C. ✖ does not take into account the long-term effects such as creep

D. ✖ is the same as the modular ratio based on the value of the elastic modulus of the structural member

E. ✖ takes into account twice the long-term effect like creep

Question Number : 67
Correct : 2 Wrong : 1

According to IS 456, when high strength deformed bars are used, the reinforcement shall not be less than p percent of the total cross sectional area of the slab, where p is

Options :

A. ✔ 0.12

B. ✖ 0.15

C. ✖ 0.10

D. ✖ 0.09

E. ✖ 0.16

Question Number : 68
Correct : 2 Wrong : 1
Lap splices shall not be used without additional precautions beyond bar diameter of
Options :
A. ✖ 28 mm
B. ✖ 30 mm
C. ✖ 32 mm
D. ✔ 36 mm
E. ✖ 40 mm

Question Number : 69
Correct : 2 Wrong : 1
The redistribution of moments in a statically inderminate beams is restricted to q percent as per the IS 456 limit state design method, wherein, q is
Options :
A. ✖ 10%
B. ✖ 70%
C. ✔ 30%
D. ✖ 50%
E. ✖ 40%

Question Number : 70
Correct : 2 Wrong : 1
As per IS 456, the minimum cement content for the respective durability classes can be reduced by R kg/cum while changing the maximum size of aggregate from 20 mm to 40 mm, wherein R is
Options :
A. ✖ 10
B. ✖ 15
C. ✖ 20
D. ✖ 25
E. ✔ 30

Question Number : 71
Correct : 2 Wrong : 1
As per IS 456, nominal mix concrete may be used for concrete of grades upto
Options :

A. ✖ 7.5 MPa

B. ✖ 10 MPa

C. ✖ 15 MPa

D. ✔ 20 MPa

E. ✖ 25 MPa

Question Number : 72
Correct : 2 Wrong : 1

As per IS 456, the weighing or batching accuracy (±) of cement, aggregates, water and admixture shall respectively be

Options :

A. ✖ 2, 2, 2, 2

B. ✔ 2, 3, 3, 3

C. ✖ 2, 3, 2, 3

D. ✖ 2, 2, 3, 3

E. ✖ 3, 2, 2, 2

Question Number : 73
Correct : 2 Wrong : 1

The minimum period before stricking the props to a beam spanning 7.5 m is

Options :

A. ✖ 3 days

B. ✖ 16-24 h

C. ✖ 7 days

D. ✖ 14 days

E. ✔ 21 days

Question Number : 74
Correct : 2 Wrong : 1

A Ready-mix concrete supplier supplied 101 cum of concrete for a slab. As per the minimum sampling frequency, the number of cube samples required are

Options :

A. ✔ 5

B. ✖ 4

C. ✖ 7

D. ✖ 6

E. ✖ 3

Question Number : 75
Correct : 2 Wrong : 1
In a low cost housing project of G+2 storey, it was decided to ignore the effects due to temperature fluctuations, shrinkage and creep. For this to be satisfied, the lateral dimension of the building should be less than

Options :

A. ✖ 30 m

B. ✖ 25 m

C. ✔ 45 m

D. ✖ 50 m

E. ✖ 40 m

Question Number : 76
Correct : 2 Wrong : 1
In a simply supported 9 m long beam, the effective depth should be a minimum of (approximately) d mm is required is required for assuming the vertical deflection to be satisfactory

Options :

A. ✖ 1286

B. ✖ 346

C. ✔ 450

D. ✖ 600

E. ✖ 360

Question Number : 77
Correct : 2 Wrong : 1
The nominal cover requirements for meeting the durability requirements of mild, very severe, severe, moderate, extreme types of exposure are respectively in mm

Options :

A. ✖ 20, 30, 45, 50, 75

B. ✖ 20, 45, 30, 50, 75

C. ✔ 20, 50, 45, 30, 75

D. ✖ 20, 75, 50, 30, 45

E. ✖ 20, 50, 60, 75, 90

Question Number : 78
Correct : 2 Wrong : 1

The minimum depth (in mm) of a beam, where side face reinforcement shall be provided as per IS 456 is

Options :

A. ✖ 500

B. ✖ 450

C. ✖ 350

D. ✖ 600

E. ✔ 750

Question Number : 79
Correct : 2 Wrong : 1

The maximum theoretical diameter (in mm) of steel reinforcement in a slab 180 mm thick shall be

Options :

A. ✖ 30.0

B. ✖ 36.0

C. ✔ 22.5

D. ✖ 45.0

E. ✖ 18.0

Question Number : 80
Correct : 2 Wrong : 1

According to IS 3414, the recommended spacing of expansion joints for thin unprotected slabs is

Options :

A. ✖ 30 m

B. ✖ 45 m

C. ✖ 6 m

D. ✖ 12 m

E. ✔ 15 MPa

Question Number : 81
Correct : 2 Wrong : 1

In case of a non-cellular, non-ribbed flat slab, the spacing of the steel reinforcing bars shall not exceed m times the thickness of the slab, wherein m is

Options :

A. ✖ 1.5

B. ✖ 1.2

C. ✖ 1.9

D. ✔ 2.0

E. ✖ 3.0

Question Number : 82
Correct : 2 Wrong : 1

For a wall, 36 m long and having an effective height of 5 m when designed according to empirical method and subjected only to in-plane vertical load, the minimum thickness shall be

Options :

A. ✖ 500

B. ✔ 167

C. ✖ 250

D. ✖ 333

E. ✖ 417

Question Number : 83
Correct : 2 Wrong : 1

As per IS 456, using limit state design method, in members where cracking in tensile zone is harmful because they are continuously exposed to ground water, the limiting crackwidth suggested is

Options :

A. ✖ 0.3 mm

B. ✖ 0.15 mm

C. ✖ 0.25 mm

D. ✔ 0.2 mm

E. ✖ 0.02 mm

Question Number : 84
Correct : 2 Wrong : 1

As per IS 1343, at the time of initial tensioning, the maximum tensile stress immediately behind the anchorages shall be limited to p percent of the ultimate tensile strength of the wire, wherein p is

Options :

A. ✖ 85

B. ✖ 67

C. ✖ 50

D. ✔ 76

E. ✖ 76

Question Number : 85

Correct : 2 Wrong : 1

According to IS 1343, the flexural strength of a concrete member having a measured compressive strength of 50 MPa will approximately be equal to

Options :

A. ✔ 5 MPa

B. ✖ 7 MPa

C. ✖ 7.5 MPa

D. ✖ 10 MPa

E. ✖ 4.5 MPa

Question Number : 86

Correct : 2 Wrong : 1

If the estimated modulus of elasticity is 30 GPa, then the probable variation (according to IS 456) of the actual values (in GPa) could be between

Options :

A. ✖ 27-33

B. ✔ 24-36

C. ✖ 25.5-34.5

D. ✖ 28.5-31.5

E. ✖ 25-35

Question Number : 87

Correct : 2 Wrong : 1

Shear failure at sections of beams and cantilevers without shear reinforcement will normally occur on plane inclined at an angle

Options :

A. ✔ 30 degree to the horizontal

B. ✖ 30 degree to the vertical

C. ✖ 45 degree to the horizontal

D. ✖ 45 degree to the vertical

E. ✖ 25 degree to the vertical

Question Number : 88

Correct : 2 Wrong : 1

The minimum number of longitudinal bars to be provided as per IS 456 in a circular column shall be

Options :

A. ✖ 4

B. ✖ 5

C. ✔ 6

D. ✖ 8

E. ✖ 10

Question Number : 89
Correct : 2 Wrong : 1

The main reinforcement of a RC slab consists of 10 mm bar spaced at 100 mm c/c. If 10 mm bars are to be replaced with 12 mm bars, then the spacing w.r.t. current spacing would be increased by

Options :

A. ✖ 2 cm

B. ✖ 4 cm

C. ✔ 4.4 cm

D. ✖ 6 cm

E. ✖ 14.4 cm

Question Number : 90
Correct : 2 Wrong : 1

In limit state design, permissible bond stress in the case of deformed bars is more than in the plain bars by what percentage?

Options :

A. ✖ 25

B. ✖ 35

C. ✖ 40

D. ✖ 50

E. ✔ 60

Question Number : 91
Correct : 2 Wrong : 1

In limit state design approach, the spacing of main reinforcement primarly takes care of

Options :

A. ✖ Durability

B. ✖ Corrosion

C. ✖ Deflection

D. ✔ Cracking

E. ✖ Spalling

Question Number : 92
Correct : 2 Wrong : 1

Which of the following loads need not be considered to be acting simultaneously?

Options :

A. ✔ Wind and Seismic

B. ✖ Wind and dead

C. ✖ Wind and shrinkage

D. ✖ Seismic and temperature

E. ✖ Temperature and shrinkage

Question Number : 93
Correct : 2 Wrong : 1

Subject to a maximum of 450 mm, the maximum vertical reinforcement used in reinforced walls shall not exceed X times the wall thickness, wherein X is

Options :

A. ✖ 1.0

B. ✖ 1.5

C. ✖ 2.0

D. ✔ 3.0

E. ✖ 4.5

Question Number : 94
Correct : 2 Wrong : 1

While designing the footing according to the limit state method of design, the permissible bearing stress is taken as k times the characteristic strength of concrete, wherein, k is

Options :

A. ✖ 0.25

B. ✖ 0.35

C. ✔ 0.45

D. ✖ 0.55

E. ✖ 0.65

Question Number : 95
Correct : 2 Wrong : 1

If d is the effective depth, b is the width and D is the overall depth, then the maximum area of compression reinforcement in a beam is given by

Options :

A. ✖ 0.04bd

B. ✔ 0.04bD

C. ✖ 0.12bd

D. ✖ 0.12bD

E. ✖ 0.04dD

Question Number : 96
Correct : 2 Wrong : 1

In a reinforced concrete retaining wall, shear key is provided if

Options :

A. ✖ shear stress in the vertical component is excess

B. ✖ shear force in the toe slab is less than that in the heel slab

C. ✔ Retaining wall is not safe against sliding

D. ✖ shear force in the toe slab is more than that in the heel slab

E. ✖ Retaining wall is not safe against over-turning

Question Number : 97
Correct : 2 Wrong : 1

In post-tensioning, the elastic loss in a stressed tendon resulting from the shortening of the member when additional tendons are stressed is called as

Options :

A. ✖ Loss of prestress

B. ✖ Bond loss

C. ✔ Sequence-stressing loss

D. ✖ Anchorage loss

E. ✖ Shrinkage loss

Question Number : 98
Correct : 2 Wrong : 1

As per the limit state design of steel structures, the IS 800 code on steel design stipulates the partial safety factor for resistance of member to buckling as

Options :

A. ✔ 1.10

B. ✖ 1.25

C. ✖ 1.50

D. ✖ 1.00

E. ✖ 0.80

Question Number : 99
Correct : 2 Wrong : 1
According to IS 800, the stress range for a category of detail, depending upon the number of cycles it is required to withstand during design life is called as

Options :

A. ✖ Cut-off strength

B. ✖ Yield strength

C. ✔ Fatigue strength

D. ✖ Plastic strength

E. ✖ Fire loading

Question Number : 100
Correct : 2 Wrong : 1
In a roof truss over an industrial building, purlins are provided to carry dead loads, live loads and wind loads. As per IS 800, the support conditions assumed for these would be

Options :

A. ✔ Continuous

B. ✖ Fixed

C. ✖ Cantilever

D. ✖ Simply supported

E. ✖ Propped cantilever

Question Number : 101
Correct : 2 Wrong : 1
In order to account for the shear deformations and associated effects, the effective slenderness ratio of laced columns shall be taken as k times, the actual maximum slenderness ratio. The value of k specified in IS 800 is

Options :

A. ✖ 0.95

B. ✖ 0.85

C. ✖ 1.15

D. ✖ 1.1

E. ✔ 1.05

Question Number : 102
Correct : 2 Wrong : 1
For a 10 mm thinner plate, the distance between the centers of any two fasterners shall not exceed

Options :

A. ✖ 320 mm

B. ✔ 300 mm

C. ✖ 250 mm

D. ✖ 280 mm

E. ✖ 150 mm

Question Number : 103
Correct : 2 Wrong : 1

In steel design as per IS 800, following are included in the limit state of serviceability except

Options :

A. ✖ Fire

B. ✖ Corrosion

C. ✖ Crack due to fatigue

D. ✖ Vibrations in the structure

E. ✔ Snow load

Question Number : 104
Correct : 2 Wrong : 1

According to IS 800, while using plastic method of analysis, unless adequate ductility and plastic rotation capacity are established for design loading conditions, the yield stress of the grade of the steel used shall not exceed

Options :

A. ✖ 415 MPa

B. ✖ 500 MPa

C. ✖ 550 MPa

D. ✔ 450 MPa

E. ✖ 380 MPa

Question Number : 105
Correct : 2 Wrong : 1

In the design of steel columns, the shear resistance at the proper contact surface between steel base and concrete/ grout may be calculated using a friction coefficient of

Options :

A. ✖ 0.25

B. ✖ 0.35

C. ✖ 0.65

D. ✖ 0.55

E. ✔ 0.45

Question Number : 106
Correct : 2 Wrong : 1

The shape factor of a rectangular beam of width b and depth d is

Options :

A. ✖ 1.00

B. ✔ 1.50

C. ✖ 1.25

D. ✖ 2.34

E. ✖ 1.70

Question Number : 107
Correct : 2 Wrong : 1

For members subjected to bending, the stiffner provided to provide local reinforcement to a web under shear and bearing is called as

Options :

A. ✖ Intermediate transverse web stiffner

B. ✖ Load carrying stiffner

C. ✖ Bearing stiffner

D. ✖ Torsion stiffner

E. ✔ Diagonal stiffner

Question Number : 108
Correct : 2 Wrong : 1

Which of the following load combinations are not mentioned in IS 800

Options :

A. ✖ Dead load + Erection load

B. ✖ Dead load + Imposed load

C. ✖ Dead load + imposed load + wind load

D. ✖ Dead load + earthquake load

E. ✔ Dead load + Earthquake load + wind load

Question Number : 109
Correct : 2 Wrong : 1

Two plates of Fe410 grade and thicknesses 14 mm and 12 mm are to be shop welded by a single V-groove weld joint. The joint is subjected to a factored tensile force of 350 kN. Assuming effective length of 150 mm, the strength of the weld is

Options :

A. ✖ 350 kN

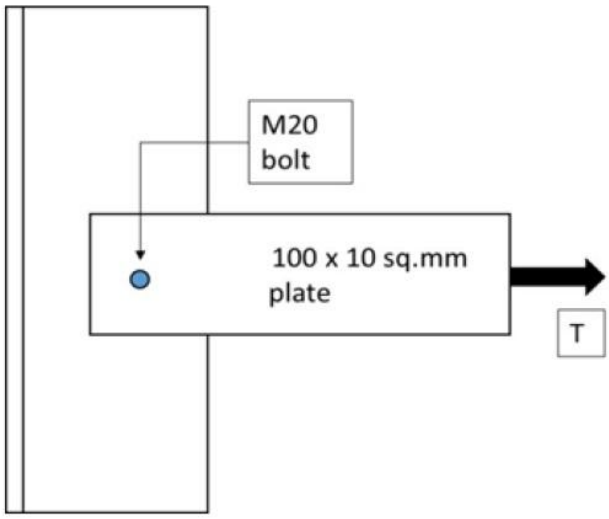
B. ✖ 410 kN

C. ✔ 225 kN

D. ✖ 250 kN

E. ✖ 125 kN

Question Number : 110
Correct : 2 Wrong : 1



Supposing the drilled holes are used, then the net area for the tension member shown in the figure would be

Options :

A. ✖ 760 sq.mm

B. ✖ 750 sq.mm

C. ✔ 780 sq.mm

D. ✖ 1000 sq.mm

E. ✖ 880 sq.mm

Question Number : 111
Correct : 2 Wrong : 1

According to IS 800, the modulus of elasticity of steel, irrespective of its grade may be taken as

Options :

A. ✖ 200 GPa

B. ✖ 2000000 MPa

C. ✔ 250 GPa

D. ✖ 175 GPa

E. ✖ 300 GPa

Question Number : 112
Correct : 2 Wrong : 1
Rivets and bolts subjected to both shear stress (Tvf,cal) and axial tensile stress (Stf, cal) shall be so proportioned that the stresses do not exceed the respective allowable stresses Tvf and Stf and the value of ((Tvf,cal/Tvf)+(Stf, cal/Stf) does not exceed

Options :

A. ✖ 0.90

B. ✖ 1.00

C. ✖ 1.80

D. ✖ 1.20

E. ✔ 1.40

Question Number : 113
Correct : 2 Wrong : 1
When a steel exhibits linear load displacement until fracture occurs suddenly with very litte plastic deformation, then the behavior is called as

Options :

A. ✖ Ductile behavior

B. ✖ Newtonian behavior

C. ✖ Elasto-plastic behavior

D. ✔ Brittle behavior

E. ✖ Plastic behavior

Question Number : 114
Correct : 2 Wrong : 1
As stated in IS 800, the limit state of strength design of steel includes all of the following except

Options :

A. ✖ Brittle fracture

B. ✖ Fatigue fracture

C. ✖ Excessive deformation

D. ✔ Repairable damage

E. ✖ Rupture of a component in the structure

Question Number : 115
Correct : 2 Wrong : 1
As per IS 875 (Part 2), the uniformly distributed load (UDL), in kN / sq.m for balconies is taken as

Options :

A. ✖ 2.0

B. ✖ 1.5

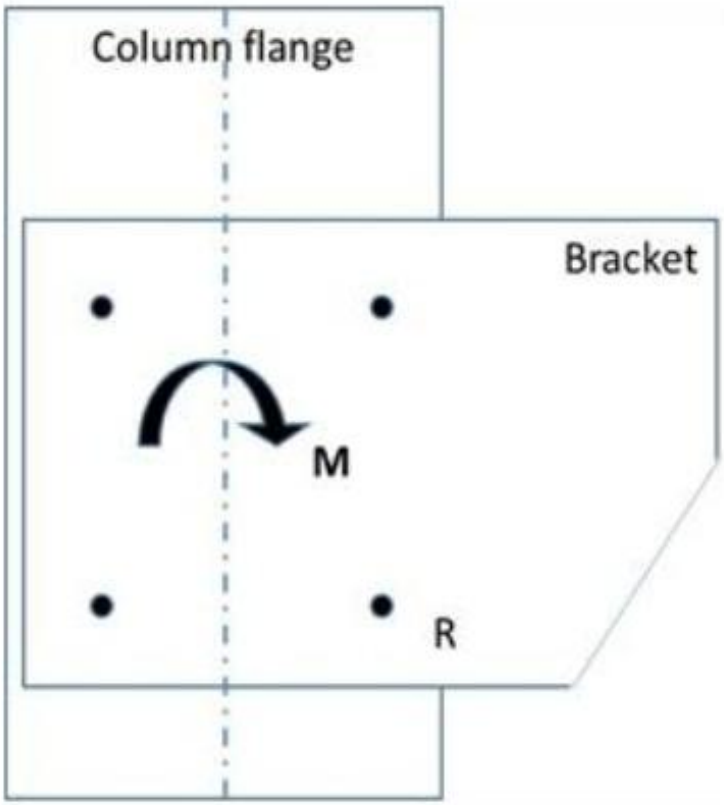
C. ✔ 3.0

D. ✖ 1.4

E. ✖ 2.7

Question Number : 116
Correct : 2 Wrong : 1

The shear force induced in the river R when a moment of 50 kN-m is transmitted to a column flange through a bracket using 4 no.s 20 mm diameter revets is approximately



Options :

A. ✔ 176 kN

B. ✖ 125 kN

C. ✖ 250 kN

D. ✖ 100 kN

E. ✖ 88 kN

Question Number : 117
Correct : 2 Wrong : 1

The coefficient of thermal expansion (in degree/ degree C) of structural steel, irrespective of its grade can be assumed as

Options :

A. ✖ 10×10^{-6}

B. ✖ 10.5×10^{-6}

C. ✖ 10.75×10^{-6}

D. ✖ 13.25×10^{-6}

E. ✔ 12×10^{-6}

Question Number : 118
Correct : 2 Wrong : 1

According to IS 800, the maximum effective slenderness ratio for members always under tension (other than pre-tensioned members) is

Options :

A. ✖ 180

B. ✖ 250

C. ✖ 300

D. ✔ 400

E. ✖ 350

Question Number : 119
Correct : 2 Wrong : 1

The standard clearance (for holes) in diameter and width of slot for a fastner 18 mm in diameter is

Options :

A. ✖ 1 mm

B. ✔ 2 mm

C. ✖ 3 mm

D. ✖ 4 mm

E. ✖ 6 mm

Question Number : 120
Correct : 2 Wrong : 1

In an unloaded structure, as erected, the tolerance limit of deviation of distance between adjacent columns after erection is

Options :

A. ✖ 0.002 h, h is the height of the column

B. ✔ 5 mm

C. ✖ 10 mm

D. ✖ 0.0035 h

E. ✖ 0.0025 he, he is the effective length of the column

Question Number : 121
Correct : 2 Wrong : 1
In a plate girder, the web plate is connected to the flange plates by fillet welding. The size of the fillet welds is designed to safely resist

Options :

A. ✖ bending stresses in the flanges

B. ✖ vertical shear force at the section

C. ✔ horizontal shear force between the flanges and the web plate

D. ✖ forces causing buckling in the web

E. ✖ warping in the flange plates

Question Number : 122
Correct : 2 Wrong : 1
To prevent flash setting of cement, which of the following is added to cement?

Options :

A. ✖ Fly ash

B. ✖ Silica fume

C. ✔ Gypsum

D. ✖ Sodium oxide

E. ✖ Lime

Question Number : 123
Correct : 2 Wrong : 1
The LeChatelier test on cement pastes detects unsoundness due to the following

Options :

A. ✖ Alumina content

B. ✖ Calcium sulfate content

C. ✖ Magnesium oxide

D. ✔ Free lime content

E. ✖ Iron oxide content

Question Number : 124
Correct : 2 Wrong : 1

Abrams law formulated in 1919 states that the strength of concrete varies inversely with the water/cement ratio. Which of the following condition needs to be satisfied for this law to be applicable?

Options :

A. ✖ Cement should of good quality

B. ✖ Water should be clean

C. ✖ Compaction should be carried out with needle vibrators

D. ✖ Chemical admixtures must be used

E. ✔ The concrete should be fully compacted

Question Number : 125
Correct : 2 Wrong : 1

For a 43 grade cement conforming to IS 8112 (2013), the maximum allowed compressive strength at 28-days is

Options :

A. ✔ 58 MPa

B. ✖ 43 MPa

C. ✖ 53 MPa

D. ✖ 33 MPa

E. ✖ 63 MPa

Question Number : 126
Correct : 2 Wrong : 1

The maximum allowable water absorption (%, by weight) of bricks conforming Class 17.5 of IS 1077 (1992) is

Options :

A. ✖ 17.50%

B. ✖ 8.25%

C. ✖ 33%

D. ✔ 15%

E. ✖ 20%

Question Number : 127
Correct : 2 Wrong : 1

An accelerating admixture added to concrete performs the following functions

Options :

A. ✖ Accelerated water losses from concrete

B. ✖ Accelerates the curing of concrete

C. ✔ Increases rate of hydration of cement

D. ✖ Accelerates the deterioration of concrete

E. ✖ Accelerates the setting time of concrete

Question Number : 128
Correct : 2 Wrong : 1

Fly ash addition to concrete helps in

Options :

A. ✖ Improving workability, pumpability and accelerates early strength gain

B. ✖ Reducing set time of concrete and improves finishibility

C. ✔ Reducing the water demand, reducing the heat of hydration and delays the setting time of concrete

D. ✖ Improves pumpability and reduces curing time

E. ✖ Increasing the bleeding by reducing the heat of hydration

Question Number : 129
Correct : 2 Wrong : 1

The minimum cement content (in kg/cum) for plain cement concrete required for severe exposure condition as per IS 456 (2000) is

Options :

A. ✖ 220

B. ✖ 240

C. ✔ 250

D. ✖ 260

E. ✖ 280

Question Number : 130
Correct : 2 Wrong : 1

According to IS 456, when assessing the strength of a structure or structural member for the limit state of collapse, the value of partial safety factor for concrete (material) should be

Options :

A. ✖ 1.15

B. ✖ 2.00

C. ✖ 2.50

D. ✔ 1.50

E. ✖ 3.00

Question Number : 131
Correct : 2 Wrong : 1
Usually, there is an increase in the volume of sand caused by the films of water pushing the sand particles apart. This effect is called as

Options :

A. ✖ Efflorescence

B. ✖ Caving

C. ✖ Boiling

D. ✔ Bulking

E. ✖ Expansion

Question Number : 132
Correct : 2 Wrong : 1
According to IS 456 (2000), the characteristic strength of concrete is defined as the strength of material below which not more than X percent of the test results are expected to fall. The value of X is

Options :

A. ✖ 0.75

B. ✖ 0.05

C. ✖ 10.00

D. ✖ 7.50

E. ✔ 5.00

Question Number : 133
Correct : 2 Wrong : 1
According to IS 456 (2000), the recommended slump (in mm) range for in-situ piling using concrete is

Options :

A. ✖ 25-75

B. ✔ 100-150

C. ✖ 50-100

D. ✖ 75-100

E. ✖ 200+

Question Number : 134
Correct : 2 Wrong : 1
The drawings issued to site for construction are called as

Options :

A. ✖ Tender stage drawings

B. ✖ Contract drawings

C. ✖ As-built drawings

D. ✔ Good for construction drawings

E. ✖ Engineering drawings

Question Number : 135
Correct : 2 Wrong : 1

A float (or slack) in a critical path method (CPM) is amount of time that a task can be delayed without causing any delay to

Options :

A. ✔ Subsequent tasks and project completion date

B. ✖ Interdependent tasks

C. ✖ Subsequent tasks only

D. ✖ Preceding tasks

E. ✖ Project completion date only

Question Number : 136
Correct : 2 Wrong : 1

A borrow area soil material is sampled and weighs 1100 g. It is then oven dried in the lab till constant weight is achieved. This constant weight is 1000 g. If 1000000 MT of this soil is to be compated at 15% moisture content, then the quantity of water(in Lit) required to be added to this soil will be

Options :

A. ✖ 150000

B. ✖ 100000

C. ✔ 50000

D. ✖ 1500

E. ✖ 5000

Question Number : 137
Correct : 2 Wrong : 1

Which of the following is true for Project evaluation and review technique (PERT)?

Options :

A. ✔ It is event oriented and is a tool for planning

B. ✖ It is activity oriented and extensively used in construction

C. ✖ It uses cost as a critical input factor

D. ✖ It minimizes the importance of events

E. ✖ The events in such a network do not fall in logical sequence

Question Number : 138
Correct : 2 Wrong : 1

A dummy activity is one which

Options :

A. ✖ Requires time but no other resources

B. ✖ Requires machinery but no time

C. ✔ Requires neither time nor any other resources

D. ✖ Requires people, but not the time

E. ✖ Requires people and time, but no money

Question Number : 139
Correct : 2 Wrong : 1

As the water/cement ratio increases, the permeability of concrete

Options :

A. ✖ Remains unaffected

B. ✔ Increases

C. ✖ Decreases

D. ✖ Uncertain

E. ✖ Nominally changes

Question Number : 140
Correct : 2 Wrong : 1

Approximately how many hours it will take for a concrete batching and mixing plant of rated capacity 120 cum/h and working at an efficiency of 80% to produce concrete required for a base slab of 1920 cum?

Options :

A. ✖ 16.0

B. ✖ 12.8

C. ✖ 160.0

D. ✖ 16.4

E. ✔ 20.0

Question Number : 141
Correct : 2 Wrong : 1

Which of the following is not used in the design calculations of concrete mix design according to the latest version of IS 10262?

Options :

A. ✖ water/cement ratio

B. ✖ Various zones of fine aggregates

C. ✖ Water reduction by superplasticizer

D. ✔ Alkali content of cement

E. ✖ Workability

Question Number : 142
Correct : 2 Wrong : 1

The minimum period before stripping the formwork for props to slabs spanning 6 m is

Options :

A. ✖ 16-24 h

B. ✖ 3 days

C. ✖ 7 days

D. ✖ 21 days

E. ✔ 14 days

Question Number : 143
Correct : 2 Wrong : 1

Which one of the following is not a workability measurement test of concrete?

Options :

A. ✖ Slump cone

B. ✖ Compaction factor

C. ✖ Vebe test

D. ✖ Ball penetration test

E. ✔ Flow time by Marsh cone

Question Number : 144
Correct : 2 Wrong : 1

If to, tp and tm are the optimistic, pessimistic and most likely time estimates of an activity respectively, the expected time t of the activity will be

Options :

A. ✖ (to+3tm+tp)/2

B. ✖ (to+3tm+tp)/3

C. ✖ (to+4tm+tp)/4

D. ✖ (to+4tm+tp)/5

E. ✔ (to+4tm+tp)/6

Question Number : 145
Correct : 2 Wrong : 1

According IS 2212, the recommended type of brick wall for severe exposure condition is

Options :

A. ✖ Unrendered 1/2-brick thick wall

B. ✖ Unrendered 1-brick thick wall

C. ✔ Unrendered 1.5-brick thick wall

D. ✖ Rendered solid wall

E. ✖ Cavity wall or rendered one-brick thick solid wall

Question Number : 146
Correct : 2 Wrong : 1

The development of hair-like cracks usually in an irregular pattern caused by the shrinkage of concrete surface is called as

Options :

A. ✖ Blistering

B. ✖ Cracking

C. ✔ Crazing

D. ✖ Laitance

E. ✖ Grinning

Question Number : 147
Correct : 2 Wrong : 1

A grader working at 75 % efficiency is used in clearing ditches and levelling and reshaping roads. It requires 3 passes while running at a speed of 5 kmph. If the lane length is 1 km, the total time (in h) required to complete grading one lane will be

Options :

A. ✖ 1.00

B. ✖ 0.75

C. ✖ 0.80

D. ✖ 0.25

E. ✔ 0.50

Question Number : 148
Correct : 2 Wrong : 1

Which of the following is not a joint type in stone masonry

Options :

A. ✖ Butt joint

B. ✖ Cramp joint

C. ✖ Rusticated joint

D. ✔ Rebated joint

E. ✖ Flare joint

Question Number : 149
Correct : 2 Wrong : 1

According to IS4031 (Part 5), the set time of cement is measured at

Options :

A. ✖ Room temperature and humidity

B. ✖ 25-29 degree C and 90-100% Rel. humidity

C. ✖ 23-27 degree C and 95% Rel. humidity

D. ✔ 25-29 degree C and 60-70% Rel. humidity

E. ✖ 25-30 degree C and 65% Rel. humidity

Question Number : 150
Correct : 2 Wrong : 1

Aggregate impact value gives an indication of aggregates'

Options :

A. ✖ Wearing capacity

B. ✖ Water resistance

C. ✖ Water absorption

D. ✖ Toughness

E. ✔ Shape