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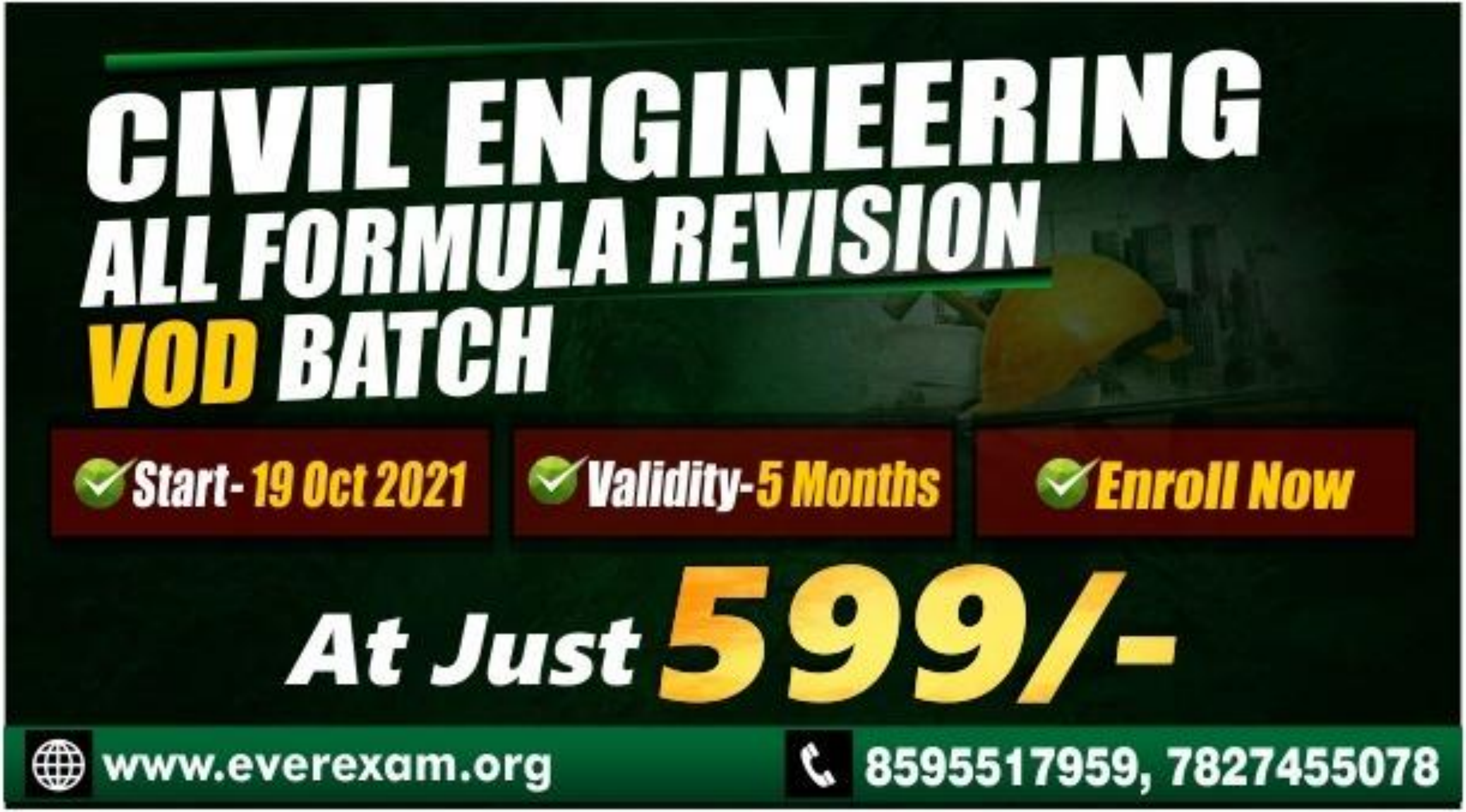
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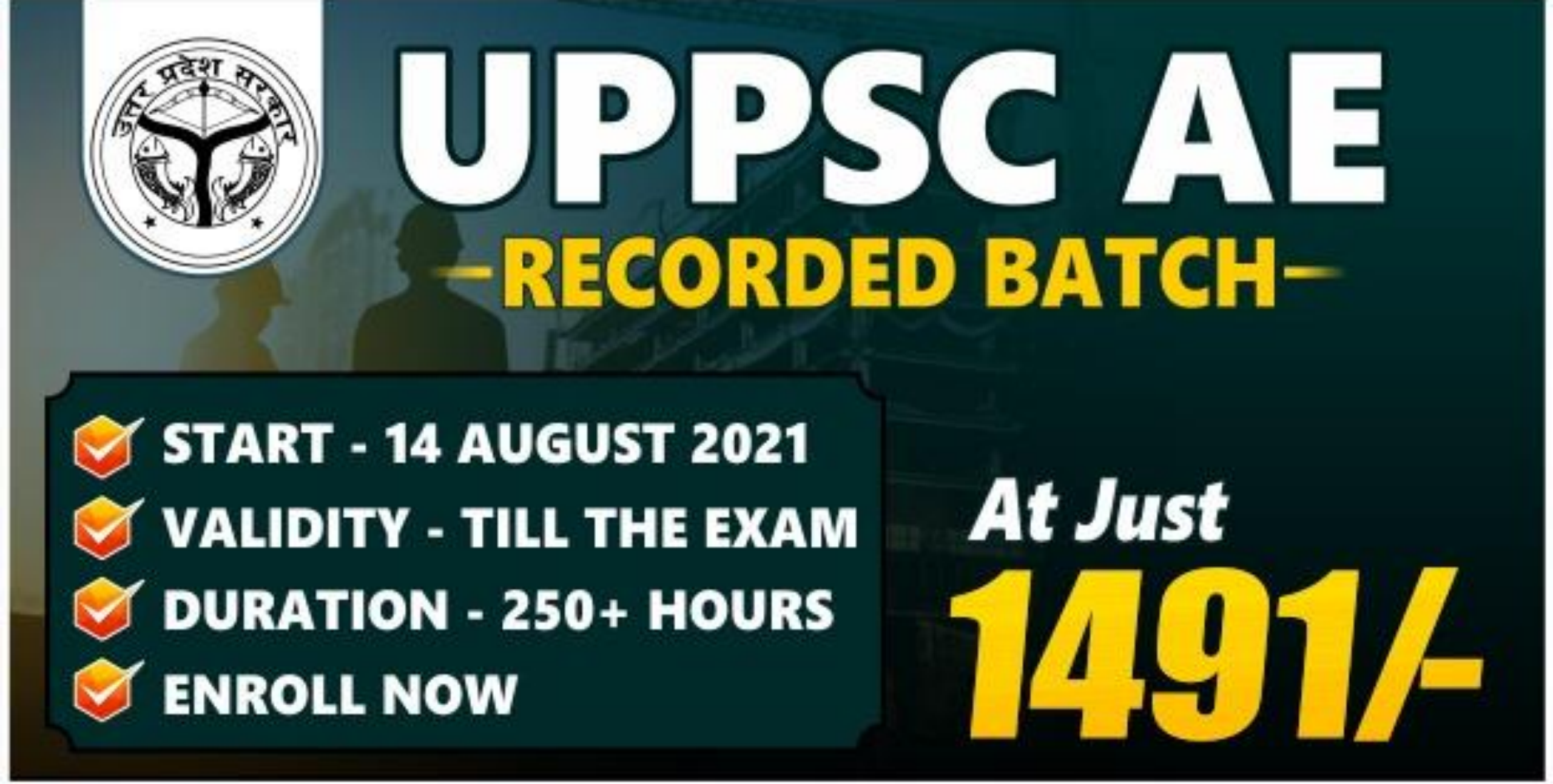
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Daily Class – 6:00 PM

Q : ) The gross diameter of a rivet is the diameter of

A : Cold rivet measured before driving

B : Rivet measured after driving

C : Rivet hole

D : None of the above

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Daily Class – 6:00 PM

Q : ) Which of the following type of the riveted joint is free from bending stress

A : Lap joint

B : Butt joint with single cover plate

C : Butt joint with double cover plate

D : None of the above

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Daily Class – 6:00 PM

Q : ) Select the correct statement

A : Material cost of rivet is higher than of bolt

B : Tensile strength of a bolt is less than that of a rivet

C : Bolts are used as temporary fastenings where a rivets are used as permanent fastening

D : Reverting is less noisy than bolting

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Daily Class – 6:00 PM

Q : ) When the axis of axis load lies in the plane of rivet group, the rivets are subjected to

A : Only shear stresses

B : Only tensile stresses

C : Both (a) and (b)

D : None of the above

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Daily Class – 6:00 PM

Q : ) When the bolts are subjected to reversal of stresses, the most suitable type of bolt is

A : Black bolt

B : Ordinary unfinished bolt

C : Turned & fitted bolt

D : High strength bolt

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Daily Class – 6:00 PM

Q : ) Eccentricity of connections introduces:

A : Primary stresses

B : Vibrating stresses

C : Secondary stresses

D : None of the above

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Daily Class – 6:00 PM

Q : ) As per the Indian standard (IS) 800 : 2007, the partial safety factor for material resistance governed by yielding failure of the steel is

A : 1.10

B : 1.15

C : 1.20

D : 1.50

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Daily Class – 6:00 PM

Q : ) A plate of size 100 mm × 10 mm having yield strength of 250 MPa. The design strength of plate in yielding of the cross section is

A : 167 kN

B : 200 kN

C : 217 kN

D : 227 kN

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Daily Class – 6:00 PM

Q : ) The minimum pitch of the rivet shall not be less than

A : d

B : 1.5 d

C : 2.0 d

D : 2.5 d

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Daily Class – 6:00 PM

Q : ) If the rivet diameter is 30 mm, the diameter of rivet hole shall be

A : 31 mm

B : 21.5 mm

C : 32 mm

D : 32.5 mm

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Daily Class – 6:00 PM

Q : ) The rivets in a lap joint will be in …….. Shear.

A : Single

B : double

C : Tearing

D : Bearing

Q : ) Efficiency of a riveted joint having the minimum pitch as per IS : 800 is

A : 40%

B : 50%

C : 60%

D : 70%

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Daily Class – 6:00 PM

Q : ) If the thickness of plate to be connected by a rivet is 16 mm, the suitable size of rivet will be

A : 16 mm

B : 20 mm

C : 24 mm

D : 27 mm

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Daily Class – 6:00 PM

Q : ) The load factor applied to dead loads or live loads in the design of steel structures is-

A : 1.3

B : 1.5

C : 1.7

D : 2.2

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Daily Class – 6:00 PM

Q : ) In upper bound theorem plastic analysis for a given frame subjected to a set of loads P, The value of P which is found to correspond to any assumed mechanism must be-

A : Greater than the collapse load $P_u$

B : Less than the collapse load $P_u$

C : Either greater than or equal to collapse load

D : None of the above

Q : ) The effective length of fillet weld is
A : Total length – 2 × Throat size
B : Total length – 2 × weld size
C : 0.7 × total length
D : Total length – (weld size × √2)



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Daily Class – 6:00 PM

Q : ) The effective length of fillet weld is

A : Total length – 2 × Throat size

B : Total length – 2 × weld size

C : 0.7 × total length

D : Total length – (weld size × $\sqrt{2}$)

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Daily Class – 6:00 PM

Q : ) Which one of the following is the mode of failure in a fillet weld material?

A : Tension

B : Shear

C : Bearing

D : Crushing

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Daily Class – 6:00 PM

Q : ) Two flats (110 mm × 16 mm) and (110 mm × 12 mm) are welded by double V butt weld. If permissible stress is 142 N/mm2, the strength of weld will be-

A : 167.75 kN

B : 195.56 kN

C : 187.44 kN

D : 210.25 kN

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Daily Class – 6:00 PM

Q : ) Bolts are most suitable to carry

A : Shear force

B : Bending moment

C : Axial tension

D : Shear force and bending moment

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Daily Class – 6:00 PM

Q : ) For a standard 45o fillet, the ratio pf fillet of throat thickness is

A : 1 : 1

B : 1 : 1.414

C : 1.414 : 1

D : 2 : 1

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Daily Class – 6:00 PM

Q : ) In the fillet weld the weakest section is the

A : Smaller side of the fillet

B : Throat of the fillet

C : Side perpendicular to force

D : Side parallel to force

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Daily Class – 6:00 PM

Q : ) If the angle between fusion faces of a fillet weld is $60^0$ – $90^o$, the effective throat thickness as per Indian standard is equal to:

A : $\frac{1}{\sqrt{2}}$ size of weld

B : $\frac{1}{\sqrt{2}}$ size of weld

C : $\sqrt{2}$ size of weld

D : $\sqrt{3}$ size of weld

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Daily Class – 6:00 PM

Q : ) The size of the fillet weld is indicated by

A : Side of the triangle of the fillet

B : Throat of the fillet

C : Length of the weld

D : Size of the plate

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Daily Class – 6:00 PM

Q : ) Welded connections are preferred to riveted connections because

A : They are economical

B : Of the ease of connection

C : The loss of member strength is smaller

D : They reduce the secondary strength

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Daily Class – 6:00 PM

Q : ) A steel plate is 30 cm wide and 10 mm thick. A river of nominal diameter of 18 mm is driven. The net sectional area of plate is

A : 18.00 $cm^2$

B : 28.20 $cm^2$

C : 28.05 $cm^2$

D : 32.42 $cm^2$

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Daily Class – 6:00 PM

Q : ) The working stress for structural steel in tension s of the order of

A : 15 $N/mm^2$

B : 75 $N/mm^2$

C : 150 $N/mm^2$

D : 750 $N/mm^2$

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Daily Class – 6:00 PM

Q : ) The maximum centre to centre distance between bolts in tension member of thickness 10 mm is

A : 200 mm

B : 160 mm

C : 120 mm

D : 100 mm

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Daily Class – 6:00 PM

Q : ) A steel member which is subjected to primary tension is called

A : Tie

B : Strut

C : Sling

D : None of the above

Q : ) Rolled steel tubes are referred by their

A : Outer diameter

B : Inner diameter

C : Average diameter

D : Outer radius

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Daily Class – 6:00 PM

Q : ) When an equal single angle is used as tension member, the contribution of outstanding leg towards effective area is

A : Same as that of connected leg

B : Less than that of connected leg by a factor

C : Two times that of connected leg

D : One and half times connected leg

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Daily Class – 6:00 PM

Q : ) The main advantage of a steel member is that it

A : Has high strength

B : Is gas and water tight

C : Has long service life

D : All of these

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Daily Class – 6:00 PM

Q : ) Consider the following statements.

1. If a lug angle is required for making connection in an angle section tension member, effective area of member will be the gross area of bolts holes.
2. In a double angle tension member with angles of opposite sides of a gusset plate, the net area provided will be same as for double angles on the same sides of gusset plate

A : Only (1) is correct

B : Only (2) is correct

C : Both (1) and (2) are correct

D : Neither (1) nor (2) is correct

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Daily Class – 6:00 PM

Q : ) In a beam that carries axial load also, that effect of deflection may be ignored, when the axial load is

A : Compressive

B : Tensile

C : Concentrated

D : Uniformly distributed

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Daily Class – 6:00 PM

Q : ) As per IS : 800 the minimum number of rivets used for attaching the lug angle to the gusset or other supporting member is:

A : 8

B : 6

C : 4

D : 2

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Daily Class – 6:00 PM

Q : ) For steel members exposed to weather and not accessible for repainting, the thickness of steel should not be less than

A : 4.5 mm

B : 6 mm

C : 8 mm

D : 10 mm

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Daily Class – 6:00 PM

Q : ) In the case of a tension member consisting of two angles back to back on the same side of gusset plate, what is k equal to? (Area of connected leg = $A_1$, area of outstanding leg = $A_2$)

A : $\frac{3A_1}{3A_1+A_2}$

B : $\frac{3A_1}{3A_1+3A_2}$

C : $\frac{5A_1}{3A_1+5A_2}$

D : $\frac{5A_1}{5A_1+A_2}$

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Daily Class – 6:00 PM

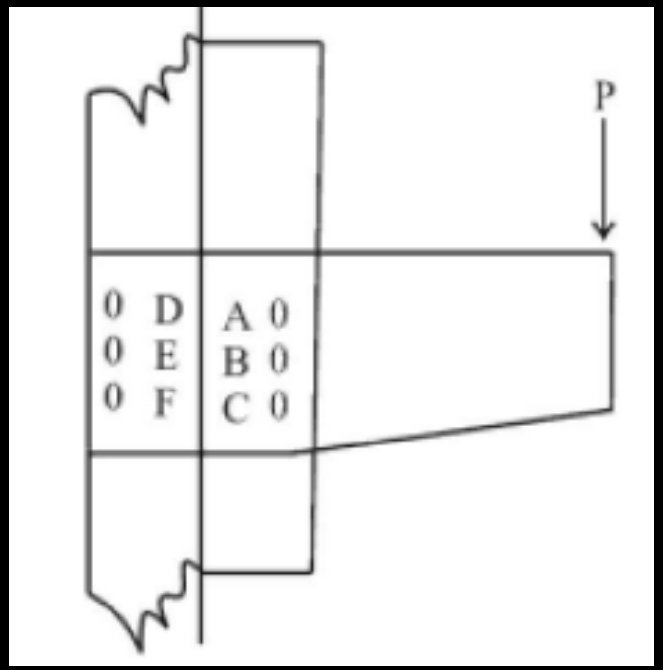
Q : ) For the eccentric connection of bracket shown In figure, which bolt will have the maximum resultant force?

A : Bolt A

B : Bolt B

C : Bolt D

D : Bolt E



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Daily Class – 6:00 PM

Q : ) Shape factor is given by

A : My/Mp

B : Z/Zp

C : Both of (a) & (b)

D : None of the above

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Daily Class – 6:00 PM

Q : ) In the roof for principal rafter most frequently used section is:

A : Two channels placed back to back

B : One angle and one channel placed back to back

C : Two angles placed back to back

D : None of the above

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Daily Class – 6:00 PM

Q : ) Lap splices are not recommended to be used for rebar diameter above

A : 32 mm

B : 36 mm

C : 25 mm

D : 28 mm

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Daily Class – 6:00 PM

Q : ) Splices for compression member are designed as

A : Short columns

B : Long columns

C : Intermediate columns

D : None of above

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Daily Class – 6:00 PM

Q : ) The slenderness ratio $\left(\frac{\ell}{r}\right)$ of lacing flats is limited to

A : 145

B : 180

C : 250

D : 350

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Daily Class – 6:00 PM

Q : ) A steel column in a multi-storeyed building carries an axial load of 125 N. It is built up of 2 ISMC-350 channels connected by lacing. The lacing carries a load of

A : 125.125 N

B : 12.525 N

C : 3.126 N

D : Zero

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Daily Class – 6:00 PM

Q : ) Which of the following is not a compression member?

A : Strut

B : Tie

C : Rafter

D : Boom

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Daily Class – 6:00 PM

Q : ) Minimum number of battens required in a battened column is

A : 2

B : 3

C : 4

D : 6

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Daily Class – 6:00 PM

Q : ) In compression member pitch of tacking rivets at a line should not be more than :

A : 1000 mm

B : 600 mm

C : 650 mm

D : 700 mm

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Daily Class – 6:00 PM

Q : ) In columns lap length is kept as:

A : Equal to development length

B : Greater than development length

C : Less than development length

D : None of the above

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Daily Class – 6:00 PM

Q : ) To get effective length of a prismatic steel compression member of length L fully restrained at both the ends, L is usually multiplied by what factor?

A : 0.65
B : 0.80
C : 1.00
D : 1.20

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Daily Class – 6:00 PM

Q : ) According to IS 800, the slenderness ratio of the branching member shall be limited to:

A : 100

B : 60

C : 120

D : 150

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Daily Class – 6:00 PM

Q : ) A per IS : 800-1984, if the diameter or rivets is 18mm, then the minimum width of lacing plate should be:

A : 50 mm

B : 55 mm

C : 60 mm

D : 65 mm

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Daily Class – 6:00 PM

Q : ) For same load, unsupported length and end conditions a laced column as compared to a battened column

A : Is stronger

B : IS weaker

C : Is equally strong

D : Cannot be compared

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Daily Class – 6:00 PM

Q : ) Angle of inclination of axis of member for lacing bars shall not be greater than

OR

The inclination of lacing bars with the axis of the compressive member should not be more than

A : $30^o$

B : $40^o$

C : $60^o$

D : $70^o$

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Daily Class – 6:00 PM

Q : ) Effective length of a column is the length between the points of:

A : Support

B : Maximum moment

C : Zero moment

D : Zero shear

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Daily Class – 6:00 PM

Q : ) The Indian standard (IS) 800:2007 divides various compression member cross-sections into how many buckling classes?

A : 1

B : 2

C : 3

D : 4

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Daily Class – 6:00 PM

Q : ) If the vertical plane of load coincides with the vertical centroidal axis of the section, the torsion is not developed in the following section:

A : An angle section

B : A T-section

C : An I-section

D : A channel section

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Daily Class – 6:00 PM

Q : ) Lacing bars in a steel column should be designed to resist

A : Bending moment due to 2.5% of the column load

B : Shear force due to 2.5% of the column load

C : 1.5% of the column load

D : Both (A) and (B)

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Daily Class – 6:00 PM

Q : ) In a simply supported beam of span L each end is restrained against torsion, compression flange being unrestrained. According to IS : 800, The effective length of the compression flange will be equal to

A : L

B : 0.5L

C : 0.75L

D : 0.70L

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Daily Class – 6:00 PM

Q : ) The strength of ‘strut’ depends on

A : Diameter of rivet used

B : Thickness of gusset plate

C : Net area of strut

D : Slenderness ratio of strut

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Daily Class – 6:00 PM

Q : ) The most economical section for a steel column is

A : Rectangle section

B : Solid section

C : I-section

D : Tubular section

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Daily Class – 6:00 PM

Q : ) The effective length of a balanced column can be increases by……. Of the corresponding effective length of similar laced column

A : 5%

B : 8%

C : 15%

D : 10%

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Daily Class – 6:00 PM

Q : ) If '$I_b$' is moment of inertia of the rolled beam section, '$A_p$' is the area of cover plates in one flange and 'h' is the distance between the centroid of the top and bottom flange plates, moment of intertia of built-up plate girder is given by-

A : 1 = $\left[1_b + 2A_p\left(\frac{h}{2}\right)^2\right]$

B : 1 = $\left[1_b + 2A_p\left(\frac{h}{2}\right)^3\right]$

C : 1 = $\left[1_b + 2A_p\left(\frac{h}{2}\right)\right]$

D : 1 = $\left[1_b + 3A_p\left(\frac{h}{2}\right)^2\right]$

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Daily Class – 6:00 PM

Q : ) In a plate girder, bending moment is resist of-

A : Web plate

B : Flange plate only

C : Flange angle only

D : Flange plate and flange angle

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Daily Class – 6:00 PM

Q : ) Where the imposed load is variable and exceeds three-quarters of the dead load, arrangements of live load acting on the floor under consideration shall not include which of the following case?

A : Imposed load in all spans

B : Imposed load on two adjacent spans

C : Imposed load on spans under consideration

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Daily Class – 6:00 PM

Q : ) The maximum width of a covered steel building section should preferably be restricted to X m beyond which suitable provisions for the expansion joint may be made, where is:

A : 50

B : 90

C : 150

D : 200

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Daily Class – 6:00 PM

Q : ) In general the depth of plate girder is kept as _____ of span

A : 1/5 to 1/8

B : 1/8 to 1/10

C : 1/10 to 1/12

D : 1/12 to 1/16

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Daily Class – 6:00 PM

Q : ) While designing electricity operated gantry girders, additional load of ..... Of maximum static wheel load should be used to calculate the vertical load transferred to rails.

A : 25% addition

B : 10% addition

C : 5% redaction

D : 10% reduction

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Daily Class – 6:00 PM

Q : ) Steel beam should be designed for

A : Flexural strength

B : Stiffness

C : Bulking

D : All the above

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Daily Class – 6:00 PM

Q : ) The heaviest I-section for same depth is

A : ISMB

B : ISLB

C : ISHB

D : ISWB

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Daily Class – 6:00 PM

Q : ) Bearing stiffener in a plate girder is used to

A : Transfer the load from the top flange to the bottom one

B : Prevent buckling of web

C : Decrease the effective depth of web

D : Prevent excessive deflection

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Daily Class – 6:00 PM

Q : ) IN plastic analysis of steel structures, at the location of plastic hinge

A : Curvature is zero

B : Curvature is infinite

C : Moment is infinite

D : Moment is zero

Q : ) Vertical web stiffeners are used in plate girder to:

A : Avoid buckling of web plate

B : Improve the asthetic of girder

C : Increase the moment capacity of girder

D : None of the above

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Daily Class – 6:00 PM

Q : ) Limiting deflection for steel becomes supporting floor and false ceiling should be

A : Span/600

B : Span/500

C : Span/325

D : Span/200

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Daily Class – 6:00 PM

Q : ) The junction between flange and web of an I-section is called :

A : Lap joint

B : Butt joint

C : Fillet joint

D : Shear joint

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Daily Class – 6:00 PM

Q : ) In case of I-section steel beam:

A : Shear capacity of flange is neglected

B : Shear capacity of web is neglected

C : Shear capacity of both flange and web is neglected

D : None of the above

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Daily Class – 6:00 PM

Q : ) The plastic modulus of rectangular beam of width 200 mm and depth 400 mm is

A : $2 \times 10^6$ $mm^3$

B : $5.33 \times 10^6$ $mm^3$

C : $8 \times 10^6$ $mm^3$

D : $1.07 \times 10^6$ $mm^3$

Q : ) As per the Indian standard (IS) 800 :2007, with respect to serviceability and when transverse stiffeners are not provided, the $\frac{d}{t_w}$ ratio of the web should be less than or equal too (depth of web = d ; thickness of web = $t_w$; and yield stress ratio of seb = $\varepsilon_v$)

A : 400 $\varepsilon_w$

B : 250 $\varepsilon_w$

C : 200 $\varepsilon_w$

D : 150 $\varepsilon_w$

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Daily Class – 6:00 PM

Q : ) In a plate girder design, the web contribution to the compression flange area is

A : $A_w$

B : $\frac{A_w}{8}$

C : $\frac{A_w}{6}$

D : $\frac{A_w}{50}$

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Daily Class – 6:00 PM

Q : ) Horizontal stiffeners in the plate girders are used to

A : Increase the bending strength of the web

B : Increase the shear capacity of the web

C : Prevent local buckling flange

D : Prevent local buckling of web

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Daily Class – 6:00 PM

Q : ) As per IS : 800 the maximum deflection in a beam should not exceed

A : $\frac{L}{180}$

B : $\frac{L}{250}$

C : $\frac{L}{325}$

D : $\frac{L}{360}$

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Daily Class – 6:00 PM

Q : ) Load factor is defined as

A : $\frac{Ultimate\ load}{Yield\ load}$

B : $\frac{Yield\ load}{working\ load}$

C : $\frac{Ultimate\ load}{working\ load}$

D : None of these

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Daily Class – 6:00 PM

Q : ) Which of the following section will have largest shape factor?

A : Rectangle

B : I-section

C : Solid circular section

D : Diamond section

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Daily Class – 6:00 PM

Q : ) For an I-beam, shape factor is 1.12. The factor of safety in bending is 1.5. If the allowable stress is increased by 20% for wind and earthquake load, then the load factor is

A : 1.10

B : 1.25

C : 1.35

D : 1.40

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Daily Class – 6:00 PM

Q : ) A simply supported beam of span L supports a connection load W at its midspan. If the cross-section of the beam is an I-section, then the length of elastic-plastic zone of the plastic hinge will be

A : L/8

B : L/4

C : L/2

D : 3L/4

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Daily Class – 6:00 PM

Q : ) A ductile structure is defined as one for which the plastic deformation before fracture

A : Is smaller than the elastic deformation

B : Vanishes

C : Is equal to the elastic deformation

D : Is much larger than the elastic deformation

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Daily Class – 6:00 PM

Q : ) As per Indian standard rolled steel I-sections are classified into

A : Four series

B : Five series

C : Six series

D : Seven series

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Daily Class – 6:00 PM

Q : ) Web crippling generally occurs at the point, where-

A : Deflection is maximum

B : Shearing stress is maximum

C : Bending stress is maximum

D : Concentrated load act

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Daily Class – 6:00 PM

Q : ) lateral stability of steel beam increases

A : Axial compressive stress in beam

B : Shear stress in beam

C : Bending tensile stress in beam

D : Bending compressive stress in beam

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Daily Class – 6:00 PM

Q : ) In ISMB – 400, 400 represents the…… of the section.

A : Flange width

B : Depth

C : Weight

D : None of these

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Daily Class – 6:00 PM

Q : ) The minimum thickness of web in plate girder is …….. Mm.

A : 6 mm

B : 8 mm

C : 10 mm

D : 12 mm

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Daily Class – 6:00 PM

Q : ) In I-section usually flanges resist

A : Tension

B : Compression

C : Shear

D : Bending moment

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Daily Class – 6:00 PM

Q : ) Spacing of the vertical stiffeners in plate girder shall be

A : Not greater than d nor less than 0.25d

B : Not greater than 2d nor less than 0.25d

C : Not greater than 1.5d nor less than 0.33d

D : Got greater than 1.2d nor less than 0.33d

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Daily Class – 6:00 PM

Q : ) In case of laterally unrestrained beams-

A : The compression flange deflects laterally

B : The tension flange deflects laterally

C : The web deflects laterally

D : None of the above

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Daily Class – 6:00 PM

Q : ) Intermediate vertical stiffeners are provided in plate girders to

A : Eliminate the web bucking

B : Eliminate the local buckling

C : Transfer the vertical loads

D : Prevent the excessive deflection

Q : ) The shape factor of a rectangular section is

A : 1.0

B : 1.5

C : 2.0

D : 3.6

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Daily Class – 6:00 PM

Q : ) The flange splice in plate girders be placed preferably near about :

A : Maximum shear location

B : Maximum moment location

C : Minimum moment location

D : Minimum shear location

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Daily Class – 6:00 PM

Q : ) In plate girders horizontal stiffeners are needed if the thickness of web is:

A : Less than 6mm

B : Less than

C : Less than $\frac{L}{500}$

D : Nearly equal to flange thickness

Where d = distance between flanges

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Daily Class – 6:00 PM

Q : ) If ‘M’ is maximum moment in the plate girder, ‘P’ is allowable bending stress and ‘$t_w$’ is the thickness of web, economical depth for a plate girder is given by-

A : $\frac{\sqrt{M/P}}{t_w}$

B : $\frac{1.2\sqrt{M/P}}{t_w}$

C : $\frac{1.1\sqrt{M}}{p.t_w}$

D : $\frac{1.3\sqrt{M/P}}{t_w}$

Q : ) A steel beam is carrying just its self load. It needs to be so supported on two columns (span length, L) with equal overhangs (y) on both the sides such that the bending moment at the mid-span is zero. The ratio of L/y should be:

A : 0.25

B : 0.5

C : 1.00

D : 2.00

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Daily Class – 6:00 PM

Q : ) The width (Thickness) of a gusset plate for the base of the pillar should not be less than :

A : 6 mm

B : 8 mm

C : 12 mm

D : 40 mm

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Daily Class – 6:00 PM

Q : ) The permissible tensile stress in bolts used for column base is :

A : 120N/mm2

B : 150N/mm2

C : 0.6 $f_y$

D : 0.4 $f_y$

Where $f_y$ is the yield stress

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Daily Class – 6:00 PM

Q : ) Where should splices in column be provided?

A : At the floor level

B : At the mid height of column

C : At the beam column joint

D : At one-fourth height of column

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Daily Class – 6:00 PM

Q : ) The thickness of the base plate provided for a steel column is determined from

A : Flexural strength of plate

B : Shear strength of plate

C : Bearing strength of the concrete pedestal

D : Punching criteria

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Daily Class – 6:00 PM

Q : ) Rotation of machine foundation about Y, Z and X axes are respectively known as-

A : Yawing, pitching and rocking

B : Pitching, yawing and rocking

C : Rocking, pitching and yawing

D : Rocking yawing and pitching

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Daily Class – 6:00 PM

Q : ) In a grillage footing the beams in each tier are spaced such that the minimum spacing between the flanges of the two consecutive beams is not less than

A : 50 mm

B : 75 mm

C : 100 mm

D : 150 mm

Q : ) Gantry girders are designed to resist

A : Lateral load

B : Longitudinal loads and vertical loads

C : Lateral, longitudinal and vertical loads

D : Lateral and longitudinal loads

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Daily Class – 6:00 PM

Q : ) The permissible bending stress in the slab base of steel column for all grades of steel is limited to

A : 165 $N/mm^2$

B : 175 $N/mm^2$

C : 185 $N/mm^2$

D : 200 $N/mm^2$

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Daily Class – 6:00 PM

Q : ) In the design of a base plate, the bearing strength of concrete as per the Indian standard (IS) 800:2007, is taken as ($f_{ck}$ is characteristic strength of concrete)

A : 0.4 $f_{ck}$

B : 0.45 $f_{ck}$

C : 0.5 $f_{ck}$

D : 0.60 $f_{ck}$

Q : ) When wind or seismic forces and considered for structural design, allowable stress in material are generally increased by

OR

Whenever the earthquake or wind loading is considered in design of member, the permissible stresses may increased by

A : 20%

B : 25%

C : $33\frac{1}{3}\%$

D : 50%

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Daily Class – 6:00 PM

Q : ) Yield line theory results in

A : Elastic solution

B : Lower bound solution

C : Upper bound solution

D : Unique solution

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Daily Class – 6:00 PM

Q : ) The design of eccentrically loaded steel column needs revision if

A : $\frac{f'_c}{f_c} + \frac{f'_b}{f_b}$

B : $\frac{f'_c}{f_c} - \frac{f'_b}{f_b} < 1$

C : $\frac{f'_c}{f_c} + \frac{f'_b}{f_b} < 1$

D : $\frac{f'_c}{f_c} + \frac{f'_b}{f_b} > 1$

Q : ) Maximum bending moment in roof purlins is taken as

A : WL/140

B : WL/20

C : WL/40

D : WL/50

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Daily Class – 6:00 PM

Q : ) In column analogy method, the area of an analogous column for fixed beam of span ‘L’ and flexural rigidity ‘EI’ is taken as-

A : L/EI

B : L/2EI

C : L/3EI

D : L/4EI

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Daily Class – 6:00 PM

Q : ) While designing the foundations of a steel building, the strength and rigidity of the foundation relative to the superstructure will be:

A : Lower than the superstructure

B : Equal to superstructure

C : Higher than superstructure

D : Does not have to be in proportion to superstructure

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Daily Class – 6:00 PM

Q : ) The maximum allowable deflection in roof purlins is :

A : 10 mm

B : $\frac{L}{200}$

C : $\frac{L}{325}$

D : $\frac{L}{400}$

Where L is the length of purlin

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Daily Class – 6:00 PM

Q : ) Normally, the pitch of roof truss with asbestos sheets should not be less than-

A : $\frac{1}{2}$ of span

B : $\frac{1}{4}$ of span

C : $\frac{1}{7}$ of span

D : $\frac{1}{12}$ of span

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Daily Class – 6:00 PM

Q : ) The wind load on a steel truss for an industrial building will depend upon

A : Location of structure

B : Shape of structure

C : Location, shape and height of structure

D : Shape and height of structure

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Daily Class – 6:00 PM

Q : ) In industrial buildings in northern hemisphere, the advantage of a north-light roof is

A : Allow sunlight into the building

B : Fully explains the aurora borealis

C : Permits diffused daylight into the building and helps avoid glare of direct sunlight

D : Allows both sunlight and the prevailing northern breeze in the building

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Daily Class – 6:00 PM

Q : ) Which of the following elements of a pitched roof industrial steel building primarily resists lateral load parallel to the ridge?

A : Purlins

B : Bracings

C : Truss

D : Columns

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Daily Class – 6:00 PM

Q : ) For a bridge having span more than 150m, the recommended type of bridge is

A : Riveted plate girder bridge

B : Welded plate girder bridge

C : Suspension bridge

D : Truss girder bridge

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Daily Class – 6:00 PM

Q : ) The Indian standard code used for wind load analysis is

A : IS 875 part-1

B : IS 875 part-2

C : IS 875 part-3

D : IS 875 part-4

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Daily Class – 6:00 PM

Q : ) The design wind speed depends upon-

(1) Risk coefficient

(2) Topography of the area

(3) Size of the structure

Of the above

A : 1, 2 are correct

B : 2, 3 are correct

C : 3, 1 are correct

D : 1, 2 and 3 are correct

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Daily Class – 6:00 PM

Q : ) Racking force on a steel railway bridge is due to

A : Tractive effect of the driving wheel

B : Braking effect

C : Resistance offered by the bearing to the movement at the roller

D : Lateral movement of the train when moving on a straight track

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Daily Class – 6:00 PM

Q : ) For the purpose of determining the seismic forces, Indian is divided into zones

A : 4

B : 5

C : 6

D : 7

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Daily Class – 6:00 PM

Q : ) Generally the purlins are placed at the panel so as to avoid

A : Axial force in rafter

B : Shear force in rafter

C : Deflection if rafter

D : Bending moment in rafter

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Daily Class – 6:00 PM

Q : ) The basic wind speed is specified at height ‘h’ above mean ground level in open terrain, the value of ‘h’ is

A : 10 m

B : 20 m

C : 25 m

D : 50 m

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Daily Class – 6:00 PM

Q : ) To minimize the total cost of a roof truss, the ratio of the cost of truss to the cost of purlin shall be

A : 1

B : 2

C : 3

D : 4

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Daily Class – 6:00 PM

Q : ) The member which support covering material of a steel roof truss are-

A : Rafters

B : Purlins

C : Struts

D : Batens

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Daily Class – 6:00 PM

Q : ) The reversible nature of loads are:

A : Earthquake loads

B : Wind loads

C : Both (A) and (B)

D : None of the above

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Daily Class – 6:00 PM

Q : ) The Indian standard (IS) 800 : 2007 recommends, in taking advantage of reduced design force, that the purlins be designed as

A : Continuous beams

B : Simply supported beams

C : Cantilever beams

D : Tension members

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Daily Class – 6:00 PM

Q : ) The principal rafter of roof truss is inclined at an angle of 15°. No access is provided except maintenance. The roof is subjected to imposed load of 0.75 $kN/m^2$, the design imposed load is

A : 1.50 $kN/m^2$

B : 0.75 $kN/m^2$

C : 0.65 $kN/m^2$

D : 0.40 $kN/m^2$

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Daily Class – 6:00 PM

Q : ) For heavy vibratory loads in industrial building, the roof trusses are provided with

A : Diagonal bracing in the lower chord member

B : Diagonal bracing in the upper chord member

C : Transverse bracing

D : Knee bracing

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Daily Class – 6:00 PM

Q : ) AS per IS : 800-1984, an angle section purlin is designed for a bending moment equal to:

A : $\frac{W\ell^2}{9}$

B : $\frac{W\ell^2}{10}$

C : $\frac{W\ell^2}{12}$

D : None of these

W = Load per meter

$\ell$ = span of purlin

Q : ) Design of structure should not consider snow load when roof is steeper than :

A : $60^{o}$

B : $45^{o}$

C : $30^{o}$

D : $15^{o}$

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Daily Class – 6:00 PM

Q : ) In a roof truss, the member which supports the purlins is known as :

A : main strut

B : Main tie

C : Main tie

D : Principal rafter

OR

Purlins are supported on the

A : Base plate

B : Common rafter

C : Principal rafter

D : Principal rafter

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Daily Class – 6:00 PM

Q : ) When purlins are placed between panel points the principal rafter is to be designed for

A : Axial compression and tension

B : Axial compression

C : Axial compression and bending moment

D : Axial tension and bending moment

Q : ) Distance between purlins on sloping roof depends on-

A : Slope of truss

B : Type of truss

C : Type of roof coverings

D : Spacing of trusses

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Daily Class – 6:00 PM

Q : ) In a steel roof truss, if angle iron purlin is used its depth should not be less than

A : 1/60 × span of purlin

B : 1/45 × span of purlin

C : 1/60 × spacing of purlin

D : 1/45 × spacing of purlin

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Daily Class – 6:00 PM

Q : ) Purlins in roof trusses are designed as……. Members.

A : bending

B : Tension

C : Compression

D : Axial

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