Question : 23 The throat in a fillet weld is:

A : Large side of the triangle of the fillet
B : Hypotenuse of the triangle of the fillet
C : Small side of the triangle of the fillet
D : Perpendicular distance from the root to the hypotenuse

Question : 24 The allowable stress in axial tension is generally kept less if thickness of the member is more than

A : 10 mm
B : 12 mm
C : 15 mm
D : 20 mm

Question : 25 The effective slenderness ratio of laced columns, compared to actual maximum slenderness ratio shall be considered as

A : 1.05 times
B : 1.10 times
C : 1.15 times
D : 1.20 times

Question : 26 For unstiffened flange of a beam in flexural compression, the maximum allowable out stand is equal to_____

A : 20 t
B : 16 t
C : 32 t
D : 14 t

Question : 27 The equivalent axial load may be defined as the load may be defined as the load which produced a stress equal to

A : Maximum stress produced by the eccentric load
B : Maximum stressed fiber
C : Bending stress
D : None of these

Question : 28 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

A : $\frac{L}{2}$
B : $\frac{L}{3}$
C : $\frac{L}{4}$
D : $\frac{L}{5}$

Question : 29 The economic of a roof truss depends upon the

A : Cost of purlins and cost of roof coverings
B : Cost of roof covering and dead loads
C : Dead loads and live loads
D : Live loads and cost of purlins

Question : 30 The space between adjacent bents in a roof truss is called:

A : Purlins
B : Bay
C : Knee
D : Braces

If a uniform bar is supported at one in a vertical direction and loaded at the bottom end by a load equal by a load equal to weight of the bar, the strain energy as compared to that due to self weight will be:

A : Same
B : Half
C : Twice
D : thrice

Consider the following factors: A.Large number of loading cycles B.Large variations is stress C.Large stress concentrations Those associated with fatigue failure would include_____.

A : A and B
B : A and C
C : B and C
D : A,B and C

A composite beam is composed of two equal strips one of brass and other of steel. If the temperature is raised

A : Steel experiences tensile forces
B : Brass experience compressive forces
C : Composite beam gets subjected to a couple
D : All of these

A simply supported beam carries a varying load from zero at one and w at the other end.If the length of the beam is a, the shear force will be zero at a distance x from least loaded point where is____.

A : a/2
B : a/3
C : $a\sqrt{3}$
D : $a\sqrt{3}/2$

The ratio of flexural rigidity of a beam (B × d) to another one (b × 2d) of similar material will be

A : 43467
B : 43469
C : 43473
D : 43481

A bar of square section of area a^2 is held such that one of its diameter is vertical.The maximum shear stress will develop at distance h where h is

A : $\frac{(2\sqrt{3})}{4}a$
B : $\frac{3}{4\sqrt{2}}a$
C : $\frac{2}{\sqrt{3}}a$
D : $\frac{\sqrt{3}}{4a}$

If a solid shaft C diameter 20 cm, length 400 cm, N= 0.8 ×10₅N/mm₂×105N/mm2when subjected to a twisting moment produces maximum shear stress of 50N/mm₂mm2, the angle of twist in radius is

A : 0.001
B : 0.002
C : 0.0025
D : 0.004

Flat spiral springs are used in-

A : Cycles
B : Road vehicles
C : Railways wagons
D : Watches

The moment required to rotate the near end of a prismatic beam through unit angle, without translation, the far end being fixed is:

A : EI/L
B : 2EI/L
C : 3EI/L
D : 4EI/L

The maximum quantity of cement content needed in one m^3 of a reinforcement concrete which is exposed to sea weather conditions is (in kg).

A : 350
B : 200
C : 250
D : 300

Shrinkage in a concrete slab

A : Causes shear cracks
B : Causes tension cracks
C : Causes compression cracks
D : Does not cause any cracking

Tension bars in a cantilever beam must be enclosed in the support up to:

A : L_d
B : $L_d/3$
C : 12ϕ
D : d

The clear distance between the lateral restraints for a simply supported or continuous beam to ensure lateral stability should not exceed:

A : 60 b² or b²/d whichever is more
B : 60 b or d²/b whichever is less
C : 60 b or d²/b whichever is more
D : 60 b or b²/d whichever is less

The width of the flange of a T-beam, which may be considered to act effectively with the rib depends upon____.

A : Breadth of the rib
B : Overall thickness of the rib
C : Center to center distance between T-beams
D : All options are correct

Minimum spacing between horizontal parallel reinforcement of the same size should not be less than

A : One diameter
B : 2.5 diameter
C : 3 diameter
D : 3.5 diameter

The main reinforcement of RC slab consists of 10 mm bars at 10 cm spacing.If it is desired to replace 10 mm bars by 12mm bars,should be____.

A : 12 cm
B : 14cm
C : 14.40 cm
D : 16 cm

The effective span of a simply slab is

A : Distance between the centres of the bearings
B : Clear distance between the inner faces of the walls
C : Clear span plus effective depth of the slab
D : None of these

Maximum spacing of longitudinal bars measured along the periphery of the RC column shall not exceed

A : 200mm
B : 250mm
C : 300mm
D : 20 times dia of longitudinal bar

Which of the following statement is true?

A : The self weight of the footing is not considered for calculating the upward pressure on footing
B : The self weight of the footing is also considered for calculating the upward pressure on footing
C : The self weight of the footing is not considered for calculating the area of the footing
D : None of these

The base width of retaining wall of height h is generally taken as, b =

A : 0.8 h
B : 0.95 h
C : 0.6 h
D : 0.3 h

In a prestressed concrete the tensioning system may be classified into:

A : 3
B : 2
C : 5
D : 4

In a grillage footing the maximum shear force occurs at the

A : Edge of grillage beam
B : Centre of base plate
C : Centre of grillage beam
D : None of these

For a standard 45∘∘ fillet, the ratio of size of fillet to throat thickness is-

A : 1:1
B : 1:$\sqrt{2}$
C : $\sqrt{2}$:1
D : 2:1

The slenderness ratio of a column is zero when its length

A : Effective length is equal to actual length
B : It very large
C : Is equal to its radius of gyration
D : Is support on all sides throughout its length

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

A : Two holes for each angles and one hole foe web
B : One hole for each angle and one hole for web
C : One hole for each angle and two hole for web
D : None of these

To the calculate area of cover plates of a built up beam, an allowance for rivet holes to be added

A : 0.1
B : 0.13
C : 0.15
D : 0.18

A web plate is called unstiffened if the ratio of clear depth and thickness is less than

A : 35
B : 50
C : 60
D : 85

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

A : $\frac{L}{2}$
B : $\frac{L}{3}$
C : $\frac{L}{4}$
D : $\frac{L}{5}$

The minimum thickness of the plates used in pressed steel tanks is

A : 4 mm
B : 5 mm
C : 6 mm
D : 3 mm

A part from gravity loads which of the following loads are also considered in the design of a gantry located within an industrial building?

1. wind load
2. Longitudinal load
3. Lateral load

Select the answer using the codes given below:

A : 1 and 2
B : 1 and 3
C : 2 and 3
D : 1,2 and 3