

Unit – 2 Tension member			
1	The rolled steel beams are mainly used		
	A.	In built up sections of columns	B. To resist bending
	C.	To resist axial forces (compressive or tensile)	D. All of these
2	Rolled steel T-sections are used		
	A.	To transmit bracket loads to the columns	B. With flat strips to connect plates in the steel rectangular tanks
	C.	In both (A) and (B)	D. None of these
3	The rolled steel flats are used as _____ members.		
	A.	Tension	B. Compression
	C.	Transverse	D. None of these
4	The brittleness of steel _____ with the increase of percentage of carbon.		
	A.	Increase	B. Decrease
	C.	Decrease	D.
5	The ductility of stele increases with the increase of percentage of carbon.		
	A.	Yes	B. No
	C.		D.
6	The strength of steel increases with the increase of percentage of carbon.		
	A.	True	B. False
	C.		D.
7	Design tensile strength of tension member is governed by		
	A.	Yielding of gross section	B. Rupture of critical section
	C.	Block shear of end region	D. Lesser of above three
8	A 'tie' is a		
	A.	Tension member	B. Compression member
	C.	Flexural member	D. Biaxial member
9	The maximum spacing of tack bolts for a tension member		
	A.	16 t	B. 600 mm
	C.	1000 mm	D. 200 mm
10	Two angles back to back used as a tension member. If two angles are not tack bolted, the design tension capacity will		
	A.	Increase	B. Decrease
	C.	Remains same	D. None of these
11	'lug angles' is used at a joint		
	A.	To increase design tension capacity	B. To replace tack bolts
	C.	To reduce length of joint	D. To take care of load reversals
12	In angle member, lug angle should be designed to carry _____ excess force, that in outstanding leg of member.		
	A.	10 %	B. 20 %

	C.	30 %	D.	50 %
13	A tension member is designed for			
	A.	Factored tensile force	B.	Service tensile force
	C.	Maximum tensile force	D.	Any one of these
14	The best section for tension member will be			
	A.	Double angles on same side of G.P with tack bolt	B.	Double angles on same side of G.P without tack bolted
	C.	Double angles on opposite side of G.P with tack bolted	D.	Double angles on opposite side G.P without tack bolted
15	A slenderness ratio in a tension member as per IS: 800-2007, where reversed of stress is due to loads other than wind or seismic loads should not exceed			
	A.	350	B.	180
	C.	400	D.	250
16	Which one of the following is not a tension member?			
	A.	Cable	B.	Bar
	C.	Boom	D.	Angle
17	An angle section is connected to a gusset plate with fillet weld. The block shear failure will occur due to			
	A.	Shear force	B.	Tensile force
	C.	Compressive force	D.	Bending due to transverse forces
18	The minimum pitch of bolt allowed in the code is			
	A.	1.5 d	B.	2.0 d
	C.	2.5 d	D.	3.0 d
19	For M20 bolt, diameter of hole will be of			
	A.	18 mm	B.	22 mm
	C.	21.5 mm	D.	23 mm
20	The minimum size of fillet weld is			
	A.	3 mm	B.	4 mm
	C.	3.5 mm	D.	5 mm
21	Partial safety factor for field welding is			
	A.	2.0	B.	1.5
	C.	1.25	D.	2.5
22	Minimum end return of weld is			
	A.	2 x size of weld	B.	3 x size of weld
	C.	2.5 x size of weld	D.	4 x size of weld
23	The maximum slenderness ratio permitted for the member which always remains in tension is			
	A.	180	B.	240
	C.	350	D.	400
24	The angle connected to G.P with longer leg resist more tensile load than if connected by shorter leg to G.P.			
	A.	True	B.	False

	C.		D.	
25	The single connected with G.P by wilding resist more tension force compare to if the same angle is connected with G.P by bolt.			
	A.	True	B.	False
	C.		D.	
26	The double angles provided on either side of G.P can resist same tension force even if both angles are provided on same side G.P.			
	A.	True	B.	False
	C.		D.	
27	In equation, $T_{dn} = \alpha \cdot A_n \cdot f_u / \gamma_{m1}$, $\alpha = 0.6$ can be taken if			
	A.	One or two bolts are provided	B.	Three bolts are provided
	C.	Four or more bolts are provided	D.	Welding is provided
28	Which type of cross section gives an ideal behavior as a beam?			
	A.	Plastic	B.	Compact
	C.	Semi-compact	D.	Slender
29	The buckling class of angle section is			
	A.	Class - a	B.	Class - b
	C.	Class - c	D.	Class - d
30	The partial safety factor for material in resistance, governed by yielding is, γ_{m0} is			
	A.	1.25	B.	1.10
	C.	0.9	D.	1.20
31	The partial safety factor for material in resistance, governed by ultimate stress, γ_{m1} is			
	A.	1.25	B.	1.10
	C.	0.9	D.	1.20
32	Design strength of tension member is taken as smallest of T_{dg} , T_{dn} , and T_{db} .			
	A.	True	B.	False
	C.		D.	
33	In equation of rupture strength of an angle in tension, the term β will have a value always greater than or equal to 0.7.			
	A.	True	B.	false
	C.	false	D.	
34	In equation of block shear strength of tension member, the term A_{vg} stands for			
	A.	Minimum gross area of shear	B.	Maximum gross area of shear
	C.	Minimum tension area	D.	Net area of shear
35	The most efficient and economical section used as beam is			
	A.	I-section	B.	H-section
	C.	Angles	D.	Circular section
36	Strength of tension member			
	A.	Yield stress	B.	Net area
	C.	Ultimate stress	D.	Length of connection
37	An ISA 100x75x8 mm is used as a tension member and connected to 10 mm thick			

	gusset plate by bolts. What is the maximum pitch of bolt?		
	A.	200 mm	B. 128 mm
	C.	160 mm	D. 300 mm
38	As long as the strength of tension member is governed by yielding of gross section, the efficiency is		
	A.	100 %	B. 20 %
	C.	30 %	D. 40 %
39	The strength of tensile members is not influenced by		
	A.	Length of connection	B. Net area of cross section
	C.	Type of fabrication	D. Length of plate
40	What are steel tension member?		
	A.	Structural elements that are subjected to direct compressive loads	B. Structural elements that are subjected to direct tensile loads
	C.	Structural elements that are subjected to indirect compressive loads	D. Structural elements that are subjected to indirect tensile loads
41	Bars and rods are not used as		
	A.	Tension members in bracing system	B. Friction resistant members
	C.	Sag rod used to support purlin	D. To support girts in industrial building
42	Which of the following type of tension member is not mainly used in modern practice?		
	A.	Open section such as angles	B. Flat bars
	C.	Double angles	D. Circular section
43	What is the net section area of steel plate 40 cm wide and 10 cm thick with one bolt if diameter of bolt hole is 18 mm?		
	A.	38.2 cm ²	B. 20 cm ²
	C.	240 mm ²	D. 480 mm ²
44	What is net area for the plate 100x8mm bolted with a single bolt of 20mm diameter in case of drilled hole?		
	A.	624 mm ²	B. 756 mm ²
	C.	800 mm ²	D. 640 mm ²
45	Determine the effective net area for angle section ISA 100x75x12 mm, when 100 mm leg is connected to a gusset plate using weld of length 140mm.		
	A.	1795 mm ²	B. 1812 mm ²
	C.	1956 mm ²	D. 2100 mm ²
46	Calculate the value of β for the given angle section ISA 150x115x8 mm of Fe410 grade of steel connected with gusset plate. Length of weld = 150mm.		
	A.	0.89	B. 0.75
	C.	0.5	D. 1.0
47	Calculate the tensile strength due to gross section yielding of an angle section 125x75x10 mm of Fe410 grade of steel connected with a gusset plate.		
	A.	780 kN	B. 586.95 kN
	C.	432.27 kN	D. 225.36 kN
48	A single unequal angle 100x75x10 mm Fe410 grade of steel is connected to a		

	10mm thick gusset plate at the ends with 6nos-16mm diameter bolts with pitch of 40mm to transfer tension. Find the tensile strength due to net section rupture if gusset is connected to 100mm leg.		
	A.	526.83 kN	B. 385.74 kN
	C.	450.98 kN	D. 416.62 kN
49	Minimum edge distances specified by code should be maintained to avoid		
	A.	Rupture of plate	B. Shearing of plate
	C.	Crushing of plate	D. Both B and C
50	Minimum edge distance is equal to		
	A.	$2.5 d_h$	B. $2.0 d_h$
	C.	$1.5 d_h$	D. None of these

Unit – 3 Compression Member

1	The main advantages 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
2	The type of rolled steel section mainly used as structural member is		
	A.	Rolled steel I-section	B. Rolled steel channel section
	C.	Rolled steel T-section	D. All of these
3	As per Indian standards, rolled steel I-section are classified into		
	A.	Four series	B. Five series
	C.	Six series	D. Seven series
4	Rolled steel angles section are classified as		
	A.	Two series	B. Three series
	C.	Four series	D. Five series
5	Rolled steel angle sections are classified as Indian standard equal and unequal angles.		
	A.	Yes	B. No
	C.	No	D.
6	Rolled steel equal and unequal sections are designated as ISA followed by		
	A.	Lengths and thickness of legs	B. Width of flanges and depth of web
	C.	Depth of section and weight per metre length	D. Any one of the these
7	A channel section consists of		
	A.	Two webs	B. Two flanges
	C.	Two webs and two flanges	D. One web and two flanges
8	The allowable stress to which a structural member can be subjected is called		
	A.	shear stress	B. Permissible stress
	C.	Tensile stress	D. Bearing stress
9	A structural member subjected to compressive force in a direction parallel to its longitudinal axis is called		
	A.	Beam	B. Column
	C.	Slab	D. None of these
10	Which of the following is not a compression member?		
	A.	Strut	B. Tie
	C.	Rafter	D. Boom
11	a strut is a structural member subjected to		
	A.	Tension in a direction parallel to its longitudinal axis	B. Tension in a direction perpendicular to its longitudinal axis
	C.	Compression in a direction parallel to its longitudinal axis	D. Compression in a direction perpendicular to its longitudinal axis
12	When compression members are overloaded, then their failure takes place because		

	of		
	A.	Direct compression	B. Excessive bending
	C.	Bending combined with twisting	D. Any one of these
13	The axial load which is sufficient to keep the column in a slight deflected shape is called		
	A.	Critical load	B. Crippling load
	C.	Buckling load	D. Any one of these
14	The failure of a column depends upon		
	A.	Weight on column	B. Length of column
	C.	Cross-sectional area of column	D. Slenderness ratio of column
15	When the cross-sectional area of the column is kept constant, the load required to cause failure due to direct compression _____ as the length of column increases.		
	A.	Increases	B. Decreases
	C.		D.
16	Buckling is defined as the sudden bending of the elements or members under compressive stresses.		
	A.	Agree	B. Disagree
	C.		D.
17	The term strut is commonly used for _____ members in roof trusses.		
	A.	Compression	B. Tension
	C.	Shear	D. None of these
18	A strut is a compression member which is		
	A.	Small in length	B. Loaded lightly
	C.	Vertical or inclined	D. All of these
19	If l is the length of column hinged at both ends and EI is its flexural rigidity, then critical load is equal to		
	A.	$\frac{\pi^2 EI}{l^2}$	B. $\frac{\pi^2 EI}{2l^2}$
	C.	$\frac{\pi^2 EI}{3l^2}$	D. $\frac{\pi^2 EI}{4l^2}$
20	Effective length of a column is the length between the points of		
	A.	Maximum moments	B. Zero shear
	C.	Zero moments	D. None of these
21	The effective length is the support length of a column.		
	A.	Right	B. Wrong
	C.		D.
22	The effective length of column, held in position at both ends but not restrained in direction, is equal to Where L = Length of column		
	A.	$0.67 L$	B. $0.85 L$
	C.	L	D. $1.2 L$
23	If I is the moment of inertia of section about the axis and A is its effective length of the compression member to the		

	A.	$\sqrt{\frac{I}{A}}$	B.	$\sqrt{\frac{I}{2A}}$
	C.	$\sqrt{\frac{I}{3A}}$	D.	$\sqrt{\frac{I}{4A}}$
24	The slenderness ratio of a single angle strut should be less than			
	A.	180	B.	250
	C.	300	D.	350
25	Maximum slenderness ratio of a compression member which carry loads resulting from wind or seismic forces only, is			
	A.	180	B.	250
	C.	300	D.	350
26	Slenderness ratio of a compression member is the ratio of effective length of the compression member to the			
	A.	Area of cross-section	B.	Moment of inertia
	C.	Radius of gyration	D.	Critical load
27	Allowable working stress for rolled steel beam section compression members may be assumed as			
	A.	60 N/mm ²	B.	80 N/mm ²
	C.	100 N/mm ²	D.	120 N/mm ²
28	The buckling load in a steel column is			
	A.	Related to the length	B.	Directly proportional to slenderness ratio
	C.	Inversely proportional to slenderness ratio	D.	Non-linearly to the slenderness ratio
29	The lateral system used in builtup column, to carry the transverse shear force, is			
	A.	Lacing	B.	Batten plates
	C.	Perforated plates	D.	Any one of these
30	The common section used in lacing, is			
	A.	Rolled steel flat	B.	Rolled channel
	C.	Rolled angle	D.	All of these
31	A single triangular system is formed in the case of			
	A.	Single lacing	B.	Double lacing
	C.	Both A and B	D.	None of these
32	The angle of inclination of lacing bars with the longitudinal axis of the component member should not be			
	A.	Less than 40°	B.	More than 70°
	C.	Both A and B	D.	None of these
33	According to IS:800-1984, lacing bars should resist a transverse shear equal to _____ of the axial load in the member.			
	A.	2.5 %	B.	5 %
	C.	7.5 %	D.	10 %

34	Slenderness ratio of the lacing bar for compression member should not excess		
	A.	125	B. 135
	C.	145	D. 155
35	In a double lacing, the lacing flats are placed to form a single triangular system.		
	A.	Yes	B. no
	C.		D.
36	The battening is preferred when the		
	A.	Column is axially loaded	B. Space between the two main components is not very large
	C.	Both A and B	D. None of these
37	The battened plates used to connect the components of built up column are designed to resist		
	A.	Longitudinal shear	B. Transverse shear
	C.	Moment arising from transverse shear	D. None of these
38	The number of batten plates should be such that it divides the column longitudinal in at least _____ parts.		
	A.	Two	B. Three
	C.	Four	D. five
39	The effective length of a battened columns should be increased by		
	A.	5 %	B. 10 %
	C.	15 %	D. 20 %
40	The thickness of batten plate should be greater than $1/50^{\text{th}}$ of the distance between the innermost connecting lines or welds.		
	A.	True	B. False
	C.		D.
41	Which of the following section will be preferred for column section?		
	A.	ISMB	B. ISLB
	C.	ISWB	D. ISHB
42	For equal cross-sectional area, the most efficient section for column is		
	A.	I-section	B. Channel section
	C.	Hollow circular section	D. Circular section
43	Failure in a short columns are generally by		
	A.	Crushing of material	B. Elastic buckling
	C.	Inelastic buckling	D. Torsional buckling
44	For compression member, maximum spacing of tack bolts is		
	A.	12 t	B. 500 mm
	C.	600 mm	D. 1000 mm
45	The design compressive stress of axially loaded compression members in IS : 800-2007 is given by		
	A.	Merchant rankine formula	B. Secant formula

	C.	Euler's formula	D.	Perry Robertson formula
46	Tabular sections form most economical compression member because			
	A.	It has high lateral buckling strength	B.	It has high torsional resistance
	C.	Subjected to less wind force	D.	All the above
47	Battens are designed for			
	A.	Shear force	B.	Bending moment
	C.	Shear force and bending moment	D.	Torsional moment
48	Battens are designed for transverse shear force V_t equal to			
	A.	10 % of total axial force on column	B.	5 % of total axial force on column
	C.	2.5 % of total axial force on column	D.	1 % of total axial force on column
49	As per IS-800-2007, f_{cd} stands for			
	A.	Design tensile stress	B.	Design compressive stress
	C.	Design bending stress	D.	Design torsion stress
50	A compression member in a roof truss is normally treated as			
	A.	Column	B.	Secondary beam
	C.	Strut	D.	Main tie

Unit – 5 Slab Base foundation

1	In slab base foundation, maximum bearing strength of concrete is taken as		
	A.	$0.45 f_{ck}$	B. $0.50 f_{ck}$
	C.	$0.60 f_{ck}$	D. $0.70 f_{ck}$
2	In a gusseted base, the critical section for considering the thickness of base plate is		
	A.	At the centre of base plate	B. At the edge of base plate
	C.	At the root of gusset plate	D. At C.G of gusset plate
3	In a gusset base, when the end of the column is machined for complete bearing on the base plate, then the axial load is assumed to be transferred to base plate		
	A.	Fully by direct bearing	B. Fully through fastenings
	C.	50% by direct bearing and 50% through fastenings	D. 75% by direct bearing and 25% through fastenings
4	To keep the intensity of bearing pressure between the column base and concrete compressive and to vary from zero to $2P/BL$, the ratio of the moment M to the axial load P should be		
	A.	$L/2$	B. $L/3$
	C.	$L/4$	D. $L/6$
5	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. Centre of base plate
6	Pick up the correct statement from the following:		
	A.	Loaded columns are supported on column bases	B. Column bases transmit the column load to the concrete foundation
	C.	Column load is spread over a large area on concrete	D. All the above
7	A slab base is subjected to an axial load of 1500 kN. Use M15 Concrete for the pedestal. Find the bearing strength of concrete.		
	A.	9 N/mm^2	B. 12 N/mm^2
	C.	15 N/mm^2	D. 20 N/mm^2
8	Column base ensure verticality of the column.		
	A.	True	B. False
	C.		D.
9	Column base limit the deflections of the column.		
	A.	True	B. False
	C.		D.
10	Column transfer their loads to the soil through column bases resting over concrete or masonry blocks.		
	A.	True	B. False
	C.		D.
11	Which foundation is use for eccentric loaded steel column?		
	A.	Grillage foundation	B. Gusseted base

	C.	Slab base	D.	None of these
12	A column base is subjected to moment. If intensity of bearing pressure due to axial load is equal to stress due to moment, then bearing pressure between base and the concrete is			
	A.	Uniform compression throughout	B.	Zero at one end and compression at other end
	C.	Tension at one end and compression at other end	D.	Uniform tension throughout
13	A column section ISHB 350 @724 N/m of 250 mm width carries an axial load of 3500 kN. If square base plate having 0.90 m sides is used, M20 grade of concrete and Fe415 grade of steel. Find the bearing strength of concrete.			
	A.	9 N/mm ²	B.	12 N/mm ²
	C.	15 N/mm ²	D.	20 N/mm ²
14	For proper transmission of loads the safe bearing capacity of the soil to be determined.			
	A.	True	B.	False
	C.		D.	
15	A structural member subjected to compressive stress in a direction parallel to its longitudinal axis, is generally known as			
	A.	Column	B.	Stanchion
	C.	Post	D.	All the above
16	For the gusseted base, cantilever moment per unit width is equal to Where, w = bearing stress, c = cantilevering projection of the base plate			
	A.	$w.c^2 / 2$	B.	$w.c^2 / 4$
	C.	$w.c^2 / 8$	D.	$w.c^2 / 12$
17	Where the column end is not machined the connection is designed to transmit the column load to the base plate through welded connection.			
	A.	True	B.	False
	C.		D.	
18	Column base provide proper and firm anchorage to the column end.			
	A.	True	B.	False
	C.		D.	
19	Column base provide proper alignment of columns in plan.			
	A.	True	B.	False
	C.		D.	
20	Column base protect the base from floor/ground corrosion.			
	A.	True	B.	False
	C.	Concentrated	D.	
21	Which foundation is use for heavy loaded steel column to be rested on weak soil?			
	A.	Grillage foundation	B.	Gusseted base
	C.	Slab base	D.	None of these
22	A grillage base is checked for			
	A.	Bending	B.	Shear

	C.	Web crippling	D.	All of these
23	A slab base is subjected to an axial load of 1500 kN. Use M20 Concrete for the pedestal. Find the required area of plate.			
	A.	$1.66 \times 10^3 \text{ mm}^2$	B.	$4.5 \times 10^3 \text{ mm}^2$
	C.	$3.0 \times 10^3 \text{ mm}^2$	D.	$2.0 \times 10^3 \text{ mm}^2$
24	A slab base having axial factored load of 1500 kN for built up column. SBC of soil is 220 kN/mm^2 and grade of concrete is M20. Use Fe410 steel. Find the required area of concrete block.			
	A.	3.5 m^2	B.	2.5 m^2
	C.	4.4 m^2	D.	5.0 m^2
25	For the gusseted base, length of base plate is equal to			
	A.	Area of base plate required / width of the base plate	B.	Area of base plate required x width of the base plate
	C.	Area of base plate required + width of the base plate	D.	None of these
26	The base plate is fitted to the concrete foundation with two or four 20 mm diameter holding down bolts.			
	A.	True	B.	False
	C.		D.	
27	The gusseted base consists of a base plate, two gusset plates one over each flange of the column and two angles.			
	A.	True	B.	False
	C.		D.	
28	In column base, the pressure on the concrete block does not exceed the permissible bearing stress.			
	A.	True	B.	False
	C.		D.	
29	The permissible bending stress in slab bases for steel is			
	A.	150 MPa	B.	160 MPa
	C.	185 MPa	D.	None of these
30	When a steel column carrying an axial load is supported directly by over a concrete block, it may fail by tilting.			
	A.	True	B.	False
	C.		D.	
31	Which foundation is use for lightly axially loaded steel column?			
	A.	Grillage foundation	B.	Gusseted base
	C.	Slab base	D.	None of these
32	A column section ISHB 350 @724 N/m of 250 mm width carries an axial load of 1200 kN. If rectangle base plate having $0.45 \times 0.35\text{m}$ sides is used, then what will be the minimum thickness of base plate?			
	A.	12.11 mm	B.	11.6 mm
	C.	10 mm	D.	None of these
33	A slab base is subjected to an axial load of 1200 kN. Use M25 Concrete for the pedestal. Find the bearing strength of concrete.			

	A.	5 N/mm ²	B.	12 N/mm ²
	C.	15 N/mm ²	D.	20 N/mm ²
34	The allowable bearing capacity is much smaller than the permissible stresses on the steel columns.			
	A.	True	B.	false
	C.		D.	
35	For a slab base foundation, area of base plate is			
	A.	Load on column / permissible bearing stress in concrete	B.	Permissible bearing stress in concrete / Load on column
	C.	Area of concrete block / load on column	D.	Load on column / Area of concrete block
36	In gusset plate, Connections are designed for 50% of the column load.			
	A.	True	B.	false
	C.		D.	
37	Number of bolts on a gusset plate and gusset angle is equal to			
	A.	Load per gusset plate / Design strength of a bolt	B.	Load per gusset plate + Design strength of a bolt
	C.	Load per gusset plate x Design strength of a bolt	D.	Load per gusset plate - Design strength of a bolt
38	Cleat angles riveted to the column web of an I-section used as a column and base plate.			
	A.	True	B.	False
	C.		D.	
39	Effective length of columns depends upon its end conditions.			
	A.	True	B.	false
	C.		D.	
40	A column splice is used to increase the length of the column.			
	A.	True	B.	false
	C.		D.	
41	A column section ISHB 350 @724 N/m of 250 mm width carries an axial load of 3500 kN. If square base plate having 0.90 m sides is used, then what will be the minimum thickness of base plate?			
	A.	85 mm	B.	70.5 mm
	C.	94.37 mm	D.	78 mm
42	A slab base is subjected to an axial load of 1200 kN. Use M25 Concrete for the pedestal. Find the required area of concrete block.			
	A.	3.5 m ²	B.	2.5 m ²
	C.	4.4 m ²	D.	5.0 m ²
43	A slab base having axial factored load of 1500 kN for built up column. provided of base plate is 19200 mm ² . SBC of soil is 220 kN / mm ² and grade of concrete is M20. Use Fe410 steel. Calculate thickness of base plate.			
	A.	12.26 mm	B.	11.6 mm
	C.	10 mm	D.	None of these

44	The web crippling due to excessive bearing stress can be avoided by		
	A.	Increasing the web thickness	B. Providing suitable stiffeners
	C.	Increasing the length of the bearing plates	D. None of the above
45	For the gusseted base, Bearing stress on base plate (w) equal to		
	A.	Column load / actual area of base plate	B. Column load x actual area of base plate
	C.	Column load + actual area of base plate	D. Column load - actual area of base plate
46	Gusseted welded base plate connections, load transmitted to one gusset plate is equal to		
	A.	$1/4^{\text{th}}$ x (load on column)	B. $1/2$ x (load on column)
	C.	$1/3^{\text{rd}}$ x (load on column)	D. $1/5^{\text{th}}$ x (load on column)
47	Under the action of the downward load exerted by the column on the base plate, and the upward reaction exerted by the concrete foundation, the base plate is subjected to bending in two principal directions.		
	A.	True	B. False
	C.		D.
48	Column base in short is used to disperse load from a steel column to a concrete foundation.		
	A.	True	B. False
	C.		D.
49	The slab bases are very convenient to use because the fabrication required is minimum.		
	A.	True	B. False
	C.		D.
50	When a steel column carrying an axial load is supported directly by over a concrete block, it may fail by _____.		
	A.	Tilting	B. Buckling
	C.	Punching	D. None of these