

Program: Civil Engineering  
Curriculum Scheme: Revised 2016  
Examination: Third Year Semester VI

Course Code CE C602 and Course Name: Design and Drawing of Steel Structures

Time: 1 hour

Max. Marks: 50

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Note to the students:- All Questions are compulsory and carry equal marks .

Q1.	Slope of a truss is equal to its
Option A:	Pitch/2
Option B:	Pitch
Option C:	Two times pitch
Option D:	1.5 times pitch
Q2.	Proof stress for minimum bolt tension is given by
Option A:	$0.6f_{ub}$
Option B:	$0.5f_{ub}$
Option C:	$0.7f_{ub}$
Option D:	$0.8f_{ub}$
Q3.	Shear lag effect depends on a) b) cd)
Option A:	width-to-span ratio
Option B:	material of beam
Option C:	width of beam only
Option D:	Length of beam
Q4.	<b>Fe</b> stands for _____ and the number after <b>Fe</b> is the tensile strength in _____
Option A:	Steel, n.mm
Option B:	Concrete, n.mm

Option C:	Steel, kN/m
Option D:	Steel, N/mm <sup>2</sup>
Q5.	The design shear strength is given by
Option A:	$V_n$
Option B:	$V_n/\gamma_{m0}$
Option C:	$V_n * \gamma_{m0}$
Option D:	$\gamma_{m0}$
Q6.	Most efficient and economical section used as a beam is
Option A:	I section
Option B:	Circular section
Option C:	Angles
Option D:	H section
Q7.	The thickness of flange cover plate should be _____ thickness of flange angle in bolted connections
Option A:	Less
Option B:	More
Option C:	Twice
Option D:	Equal to
Q8.	In case of buckling, the dispersion of load from bearing plate to neutral axis takes place at
Option A:	30 degree
Option B:	60 degree
Option C:	45 degree
Option D:	10 degree
Q9.	A plate girder is used when
Option A:	Span is large and loads are heavy
Option B:	Span is small and loads are heavy
Option C:	Span is small and loads are light.
Option D:	Span is large and loads are light.
Q10.	The bearing pressure of concrete while designing the column base is taken as
Option A:	0.35 f <sub>ck</sub>

Option B:	0.8 fck
Option C:	0.45 fck
Option D:	0.87 fck
Q11.	What is the effective length when one end of compression member is fixed and other end is free?
Option A:	0.65L
Option B:	0.8L
Option C:	L
Option D:	2L
Q12.	Which is an ideal section for compression member?
Option A:	one having different moment of inertia about any axis through its centre of gravity
Option B:	one having same moment of inertia about any axis through its centre of gravity
Option C:	one having larger length
Option D:	one made up of costly material
Q13.	For the same load, unsupported length and end condition, a laced column as compared to battened column
Option A:	is weaker
Option B:	is equally strong
Option C:	is equally weak
Option D:	is stronger
Q14.	The buckling strength of latticed column is _____ that of solid column having same area and same slenderness ratio
Option A:	Smaller than
Option B:	Greater than
Option C:	Equal to
Option D:	Less than
Q15.	Thickness of batten plates shall be
Option A:	not less than $1/50^{\text{th}}$ of distance between innermost connecting transverse bolts

Option B:	less than 1/50 <sup>th</sup> of distance between innermost connecting transverse bolts
Option C:	less than 1/60 <sup>th</sup> of distance between innermost connecting transverse bolts
Option D:	less than 1/80 <sup>th</sup> of distance between innermost connecting transverse bolts
Q16.	The thickness of base plate is determined from the
Option A:	flexural strength of the plate
Option B:	shear strength of the plate
Option C:	bearing strength of the concrete pedestal
Option D:	punching criteria
Q17.	What is net section rupture failure?
Option A:	Rupture of member when the cross section reaches yield stress
Option B:	Rupture of member when the cross section reaches ultimate stress
Option C:	Rupture of member when the cross section reaches less value than yield stress
Option D:	Rupture of member when the cross section is reaches very less value than ultimate stress
Q18.	The actual failure mode in bearing depends on
Option A:	length of metal plate
Option B:	length of bolt
Option C:	Thickness of plate
Option D:	bolt diameter
Q19.	What is the value of partial factor of safety for material $\alpha$ for preliminary design for angle section as per IS code for three bolts in connection?
Option A:	0.6
Option B:	0.7
Option C:	0.8
Option D:	1.0
Q20.	The moment capacity of plastic section for $V > 0.6V_d$ is given by
Option A:	$M_{dv} = M_d - \beta(M_d - M_{fd})$
Option B:	$M_{dv} = M_d + \beta(M_d - M_{fd})$
Option C:	$M_{dv} = M_d - \beta(M_d + M_{fd})$
Option D:	$M_{dv} = M_d + \beta(M_d + M_{fd})$
Q21.	The upper yield point in the stress strain curve in structural steel can be avoided

	by
Option A:	cold working
Option B:	hot working
Option C:	Quenching
Option D:	galvanizing
Q22.	A 15 mm thick plate is connected to two 8 mm plates on either side connected using 16 mm diameter field bolts carrying a safe load 230 kN. Calculate the bolt value.
Option A:	56.70 kN
Option B:	43.29 kN
Option C:	36.19 kN
Option D:	21.65 kN
Q23.	Codal provision in case of minimum edge distance for bolts is
Option A:	0.5x hole diameter
Option B:	1.0x hole diameter
Option C:	1.5x hole diameter
Option D:	1.5x bolt diameter
Q24.	The channels get twisted symmetrically with regards to its axis
Option A:	Parallel to flanges
Option B:	Parallel to web
Option C:	Perpendicular to flanges
Option D:	Perpendicular to web
Q25.	What is the maximum vertical deflection in industrial building for purlins and girts subjected to live load/wind load for elastic cladding?
Option A:	span/150
Option B:	span/180
Option C:	span/250
Option D:	span/100