

Program: **Civil Engineering**

Curriculum Scheme: **Revised 2012**

Examination: **Third Year Semester :VI**

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

Time: 1 hour

Max. Marks: 50

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

Q1.	Fe stands for _____ and the number after Fe 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 ²
Q2.	If the diameter of the bolt is 16 mm ,the the minimum edge distance in case of rolled edges will be
Option A:	16 mm
Option B:	27 mm
Option C:	30.6 mm
Option D:	33 mm
Q3.	The strength of tensile members is not influenced by:
Option A:	Length of connection
Option B:	Net area of cross section
Option C:	Type of fabrication
Option D:	Length of plate
Q4.	What is the effective length when one end of compression member is fixed and other end is free?
Option A:	0.65L
Option B:	0.8 L
Option C:	L

Option D:	2L
Q5.	A laced column is _____ than battened column for same load
Option A:	equally strong
Option B:	Weaker
Option C:	Stronger
Option D:	Weakest
Q6.	Which of the following is true about effective depth of end batten?
Option A:	it should be less than distance between centre of gravity of component.
Option B:	it should be half the distance between centre of gravity of component.
Option C:	it should be less than twice the width of component member.
Option D:	it should be greater than twice the width of component member
Q7.	Maximum spacing of batten should be such that slenderness ratio of component member should be
Option A:	not greater than 50
Option B:	greater than 50
Option C:	greater than 0.7 times slenderness ratio of member as a whole
Option D:	greater than slenderness ratio of member as a whole
Q8.	A 15 mm thick plate is connected to two 8 mm plates on either sides connected using 16 mm diameter field bolts carrying a safe load 230 kN. Calculate number of bolts required.
Option A:	6
Option B:	7
Option C:	8
Option D:	4
Q9.	The load transferred to the base plate in slab base
Option A:	through bearing
Option B:	through tearing
Option C:	partly through bearing and tearing
Option D:	partly through bearing and gusset plate

Q10.	The value of design bending compressive stress f_{bd} is
Option A:	$X_{LT} f_y$
Option B:	$X_{LT} f_y / f_y$
Option C:	$X_{LT} f_y f_y$
Option D:	X_{LT} / f_y
Q11.	Bars and rods are not used as:
Option A:	Tension members in bracing systems
Option B:	Friction resistant members
Option C:	Sag rods to support purlin
Option D:	To support girts in industrial buildings
Q12.	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
Q13.	In the design of framed connections ,the bolts connecting the web of the beam with connecting angles are subjected to
Option A:	single shearing and bearing on the web
Option B:	double shearing and bearing on the web
Option C:	double shearing and no bearing on the web
Option D:	no shearing but only bearing on the web
Q14.	The minimum recommended rise of trusses with asbestos cement sheets is
Option A:	1 in 12
Option B:	1 in 6
Option C:	1 in 10
Option D:	1 in 18
Q15.	Main function of purlins is _____

Option A:	To provide access to roof.
Option B:	To support two adjacent roof truss.
Option C:	To support the roofing material.
Option D:	To support the truss.
Q16.	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:	$M_{dv} = M_d + \beta(M_d + M_{fd})$
Q17.	Flange cover plates are used in plate girder when
Option A:	Flexural capacity is to be increased
Option B:	for aesthetic appearance
Option C:	when moment resisting capacity has to be increased
Option D:	when moment resisting capacity has to be decreased
Q18.	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.
Q19.	The value of ϕ_{LT} in bending stress reduction factor is given by
Option A:	$\phi_{LT} = [1 - \alpha_{LT}(\lambda_{LT} + 0.2) + \lambda_{LT}^2]$.
Option B:	$\phi_{LT} = [1 + \alpha_{LT}(\lambda_{LT} - 0.2) + \lambda_{LT}^2]$.
Option C:	$\phi_{LT} = 0.5 [1 - \alpha_{LT}(\lambda_{LT} + 0.2) + \lambda_{LT}^2]$.
Option D:	$\phi_{LT} = 0.5 [1 + \alpha_{LT}(\lambda_{LT} - 0.2) + \lambda_{LT}^2]$.
Q20.	Find net effective area for 20mm diameter bolts
Option A:	204.50 mm ²
Option B:	245.04 mm ²
Option C:	245.12 mm ²
Option D:	224.04 mm ²

Q21.	Which of the following is true about effective length?
Option A:	effective length shall be taken as length between inner end bolts of bars for single lacings
Option B:	effective length shall be taken as length between inner end bolts of bars for double lacings
Option C:	for welded bars, effective length shall be taken as 0.9 times distance between inner end welds connecting single bars to members
Option D:	effective length shall be taken as 1.5 times length between inner end bolts of bars for double lacings
Q22.	The load on bolt when two lacing flats are connected at same point is
Option A:	$(V_t / N) \cot \Theta$
Option B:	$2(V_t / N) \cot \Theta$
Option C:	$2V_t N \cot \Theta$
Option D:	$V_t N \cot \Theta$
Q23.	A 12 mm thick bracket is connected to flange of a column by using groove weld as shown in figure .Calculate the horizontal shear stress due to bending
Option A:	50.2 MPa
Option B:	66.67 MPa
Option C:	80.7 MPa
Option D:	96.67 MPa
Q24.	The d/t_w should be ___ to avoid buckling of compression flange into web when transverse stiffeners are not provided.
Option A:	$\geq 500 \epsilon_f^2$

Option B:	$\leq 345 \text{ \textit{ε}f}^2$
Option C:	$\geq 345 \text{ \textit{ε}f}^2$
Option D:	$\leq 500 \text{ \textit{ε}f}^2$
Q25.	What is block shear failure?
Option A:	Failure of fasteners occurs along path involving tension on one plane and shear on perpendicular plane along fasteners
Option B:	Failure of member occurs along path involving tension on one plane and shear on perpendicular plane along fasteners
Option C:	Failure of member occurs along path involving tension on one plane and shear on parallel plane along fasteners
Option D:	Failure of fasteners occurs along path involving tension on one plane and shear on parallel plane along fasteners