Program: BE CIVIL Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester VI

Course Code: CEC602 and Course Name: Design and Drawing of Steel Structures

Time: 1 hour Max. Marks: 50

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

Q1.	For the steel of grade Fe 410, 410N/mm^2 is –
Option A:	Yield Stress
Option B:	Design stress
Option C:	Ultimate tensile stress
Option D:	Failure stress
Q2.	A tie member ISA 100 x 75 x 8 with A_g = 16.50 cm^2 connected with longer leg using 5-M16 black bolts. Approximate rupture strength of member will be nearly-
Option A:	313 KN
Option B:	320 KN
Option C:	305 KN
Option D:	330 KN
Q3.	Which of the following type of tension member is not mainly used in modern practice
Option A:	open section such as angles
Option B:	Flat bars
Option C:	Double angles
Option D:	Circular section
Q4.	What is the effective length when both the end of compression member are Hinged?
Option A:	0.65 L
Option B:	0.80 L
Option C:	1.00 L
Option D:	2.00 L
Q5.	The value of imperfection factor for a compression member for buckling class “d” member is-
Option A:	0.34
Option B:	0.45
Option C:	0.21
Option D:	0.76

Q6.	Width of end batten in built-up column, when two channel sections are placed toe-to-toe is
Option A:	S+2g
Option B:	S-2g
Option C:	S+C_{yy}
Option D:	S
Q7.	In case of Fillet Weld to calculate Size of weld, if the value of "k is 0.55" then the Angle of Fusion will be
Option A:	60-90 degrees
Option B:	91-100 degrees
Option C:	101-106 degrees
Option D:	107-113 degrees
Q8.	Under exactly identical conditions ,battened column as compared to laced column is
Option A:	Equal in strength
Option B:	Weaker in strength
Option C:	Stronger in strength
Option D:	50% stronger
Q9.	For very short compression member the design compressive stress f_{cd} for Fe410 grade steel is
Option A:	166 N/mm^2
Option B:	250 N/mm^2
Option C:	240 N/mm^2
Option D:	227 N/mm^2
Q10.	Depth of intermediate batten = ________ of depth of end batten
Option A:	1/2
Option B:	4/3
Option C:	3/2
Option D:	3/4
Q11.	Lacing shall be designed to resist transverse shear (Vt) equals to
Option A:	0.5 % of column load
Option B:	2.5 % of column load
Option C:	5.0 % of column load
Option D:	8.0 % of column load
Q12.	In case of Plate Girder when there is second longitudinal stiffeners provided at neutral axis to meet serviceability criteria then, d/t_w should be,
Option A:	$\leq 230\ \varepsilon_w$
Option B:	$\leq 400\ \varepsilon_w$
Option C:	$\leq 340\ \varepsilon_w$
Option D:	$\leq 200\ \varepsilon_w$
Q13.	In case of Plate Girder, If Elastic Critical Stresses ($\tau_{cr,e}$) =75 N/mm^2 fyw=250 N/mm^2 , then the shear stress corresponding to the buckling (τ_b) is
Option A:	65.50 N/mm^2

Option B:	50.59 N/mm^2
Option C:	75.79 N/mm^2
Option D:	55.89 N/mm^2
Q14.	Which of the following is advantage of HSFG bolts over bearing type bolts?
Option A:	Joints are not rigid
Option B:	Bolts are subjected to shearing and bearing stresses
Option C:	High fatigue strength
Option D:	Low static strength
Q15.	Which of the following type of weld is suitable for butt joints?
Option A:	Fillet weld
Option B:	Groove weld
Option C:	Slot weld
Option D:	Plug weld
Q16.	Which of the following is the reason for beams, plate girders and columns being spliced?
Option A:	Full length is available from the mill
Option B:	For aesthetic appearance
Option C:	For easy transportation
Option D:	For frictional resistance
Q17.	In a given connection, if the bolts are subjected to combined shear & tension then the safety of critical bolt is ensured by satisfying-
Option A:	$(V_{sb} / V_{db}) + (T_b / T_{db}) \leq 1$
Option B:	$(V_{sb} / V_{db})^2 + (T_b / T_{db})^2 \leq 1$
Option C:	$(V_{sb} / V_{db}) + (T_b / T_{db}) \geq 1$
Option D:	$(V_{sb} / V_{db})^2 + (T_b / T_{db})^2 \geq 1$
Q18.	For 20 mm diameter black bolt of grade 4.6, 240 N/mm^2 is
Option A:	Ultimate tensile stress
Option B:	Design yield stress
Option C:	Design shear stress
Option D:	Design bearing stress
Q19.	The live load for a sloping roof with slope 15°, where access is not provided to roof, is taken as
Option A:	0.75 kN/m^2
Option B:	0.55 kN/m^2
Option C:	0.40 kN/m^2
Option D:	0.65 kN/m^2
Q20.	As per IS 875 the mean probable design life span for a hospital building is taken as
Option A:	5 years
Option B:	25 years
Option C:	50 years
Option D:	100 years

Q21.	Generally the purlins are placed at the panel points so as to allow only-
Option A:	Axial force in rafter
Option B:	Shear force in rafter
Option C:	Deflection of rafter
Option D:	Bending moment in rafter
Q22.	The self-weight of a roof truss of span 30 m can be taken as
Option A:	75 N/m^2
Option B:	100 N/m^2
Option C:	150 N/m^2
Option D:	4000 N/m^2
Q23.	The beam said to be laterally supported if-
Option A:	Tension flange is supported throughout
Option B:	Supported at both the ends only
Option C:	Compression flange is supported throughout
Option D:	Supported laterally at mid-span
Q24.	For a single I-section as a beam, the web buckling should be checked-
Option A:	At the junction of flange and web
Option B:	At the root of fillet of web
Option C:	At mid-point of flange
Option D:	At mid-depth of web
Q25.	When $V \leq 0.6Vd$, then the design bending strength of beams is given by
Option A:	$\beta_b /Z_p f_y \gamma_{m0}$
Option B:	$\beta_b Z_p f_y / \gamma_{m0}$
Option C:	$\beta_b Z_p /f_y \gamma_{m0}$
Option D:	$\beta_b Z_p f_y \gamma_{m0}$

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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	**C**
Q2.	**A**
Q3.	**B**
Q4.	**C**
Q5.	**D**
Q6.	**D**
Q7.	**D**
Q8.	**B**
Q9.	**D**
Q10.	**D**
Q11.	**B**
Q12.	**B**
Q13.	**C**
Q14.	**C**
Q15.	**B**
Q16.	**C**
Q17.	**B**
Q18.	**B**
Q19.	**D**
Q20.	**D**
Q21.	**A**
Q22.	**C**
Q23.	**C**
Q24.	**D**
Q25.	**B**