Unit 9 - Week 7

Assignment 7

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-09-18, 23:59 IST.

1) The buckling class for angle section about any axis is: *1 point*

a. a
b. b
c. c
d. d

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
c

2) Why is built up section used? *1 point*

a. to sustain seismic loads only
b. for aesthetic appearance
c. used when rolled section do not furnish required sectional area
d. for resisting bending moment

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
c

3) The best double angle compression member section is: *1 point*

a. equal angles on same side of gusset plate
b. unequal angles with long legs back to back
c. unequal angles with short legs back to back
d. equal angles on opposite sides of gusset plate

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
b

4) When the single angle is loaded concentrically through one leg of its legs, the equivalent slenderness ratio as per IS 800: 2007 is: *1 point*

a. $\lambda_e = \sqrt{k_1 + k_2\lambda_{vv} + k_3\lambda_\phi^2}$
b. $\lambda_e = \sqrt{k_1 + k_2\lambda_{vv}^2 + k_3\lambda_\phi^2}$
c. $\lambda_e = \sqrt{k_1 + k_2\lambda_{vv}^2 + k_3\lambda_\phi}$
d. $\lambda_e = \sqrt{k_1 + k_2\lambda_{vv} + k_3\lambda_\phi}$

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
b

5) The yield stress ratio (ε) of Fe 410 grade of steel is *1 point*

a. 0.25
b. 0.5
c. 0.75
d. 1

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
d

6) The value of design compressive strength is limited to: *1 point*

a. $f_y + \gamma_{m0}$
b. f_y
c. $f_y \times \gamma_{m0}$
d. f_y / γ_{m0}

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
d

7) A column section with a buckling class 'c', has a minimum radius of gyration of 35.4 mm. The effective length of the column is 2.275 m. The design compressive stress for f_y =250 MPa (as per IS 800: 2007) will be: *2 points*

a. 180.5 N/mm^2
b. 168.3 N/mm^2
c. 161.2 N/mm^2
d. 152.2 N/mm^2

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
c

8) An ISA 130×130×10 used as a strut has the length between the intersections at each end as 3.5 m and the yield stress f_y = 250 MPa. If it is connected with gusset plate by two bolts at each end (assume fixed condition), then the equivalent slenderness ratio will be: *4 points*

a. 1.03
b. 1.21
c. 1.34
d. 1.62

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
b

9) A discontinuous strut of length 3.2 m (L) consists of two unequal angles ISA 100×75×8 and is connected to a 12 mm thick gusset plate by its longer leg on opposite side of the gusset plate. Whereas the effective length (KL) of the double angle strut is 0.85L. Assume steel of grade Fe 410.The strength of the strut will be: *4 points*

Relevant properties of ISA 100×75×8:
A= 1336 mm^2, r_x = 31.4 mm, r_y = 21.8 mm, r_u = 34.8 mm
r_v = 15.9 mm, C_x = 31.0 mm, C_y = 18.7 mm, I_z = 131.6×10^4 mm^4,
I_y = 63.3×10^4 mm^4

a. 258.5 kN
b. 300.5 kN
c. 336.9 kN
d. 436.9 kN

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
c

10) Determine the design axial load on the column section ISMB 400, given that the height of the column is 3.0 m and is pin-ended. Also assume the following: f_y = 250 N/mm^2, f_u=410 N/mm^2; E = 2×10^5 N/mm^2: *4 points*

a. 4035 kN
b. 855 kN
c. 1102 kN
d. 1775 kN

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
b