

Unit 5 - Week 3

Course outline

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Week 3

- Lecture 11: Design of Butt Welds
- Lecture 12: Design of Plug and Slot Weld
- Lecture 13: Eccentric Connection (Load Lying in Plane of Bolted Joint)
- Lecture 14: Design of Eccentric Connection (Load Lying in Plane of Bolted Joint)
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- Week 3: Lecture Material

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Assignment Solution

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Assignment 3

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

Due on 2019-08-21, 23:59 IST.

1) In case of incomplete penetration of butt weld the effective throat thickness is taken as: 1 point

- a. $7/8$ th of the thickness of the thinner plate
- b. $3/4$ th of the thickness of the thinner plate
- c. $3/5$ th of the thickness of the thinner plate
- d. $2/3$ th of the thickness of the thinner plate

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

2) In case of combination of stresses of normal stress (f_a) and shear stress (q), the equivalent stress (f_e) is given by: 1 point

- a. $\sqrt{f_a^2 + 3q^2}$
- b. $\sqrt{f_a^2 + q^2}$
- c. $\sqrt{3f_a^2 + q^2}$
- d. None of the above

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

3) Two plates of thickness 8 mm and 10 mm are to be joined with double V groove weld. If the effective length of the weld is 100 mm, find the strength of the weld in case of shop welding? ($f_y = 250$ MPa) 2 points

- a. 120 kN
- b. 130 kN
- c. 160 kN
- d. None of the above

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

4) A joint is subjected to a tensile force 200 kN. Assuming Single-V groove weld joint and the throat thickness of 6 mm, find the effective length of weld? (Site welding) 2 points

- a. 100 mm
- b. 200 mm
- c. 300 mm
- d. 250 mm

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

5) A pipe of 80 mm dia and 6 mm thick is connected to a 12 mm thick plate. It is subjected to factored vertical load 8 kN at a distance of 0.6 m from welded end. Calculate the size of the weld assuming shop welding and grade of steel Fe410? 4 points

- a. 6 mm
- b. 5 mm
- c. 8 mm
- d. 7 mm

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

6) If the value of resultant stress, shear stress and bending stress are 68 MPa, 30 MPa and 40 MPa respectively then what is the value of critical angle between the line of action of bending stress and shear stress? (Load lying in the plane of welded joint) 2 points

- a. 30°
- b. 20°
- c. 28°
- d. 60°

- a.
 b.
 c.
 d.

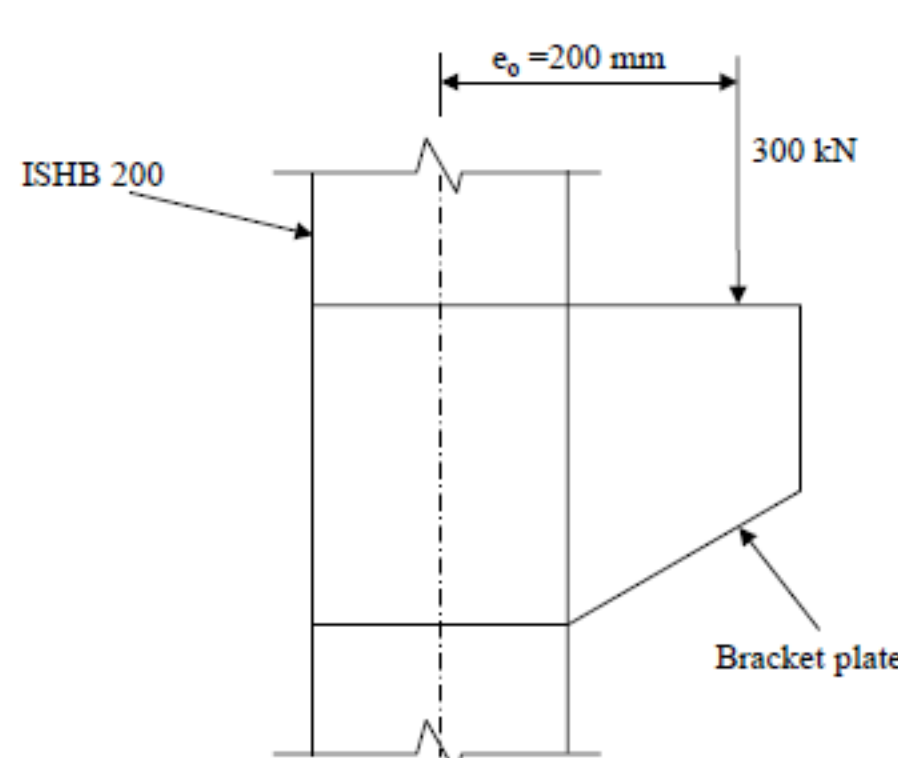
No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

7) In an eccentric connection if an end load of 300 kN is acting with an eccentricity of 200 mm as shown in the figure, the required number of bolts n in one row in a bolt group with bolts having pitch $p = 50$ mm, number of rows $n' = 2$ and bolt value $B_{sd} = 50$ kN, should be: 3 points



- a. 7
- b. 8
- c. 9
- d. 10

- a.
 b.
 c.
 d.

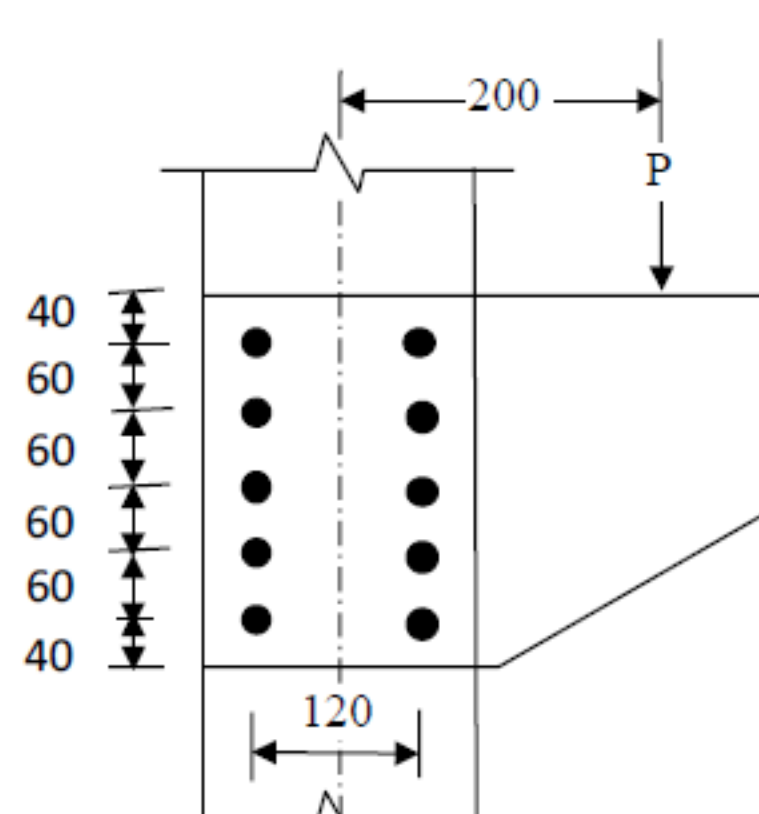
No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

8) A factored load P is acting with an eccentricity of 200 mm as shown in the figure. The steel used is of grade Fe 410. The bolts are used of grade 4.6 with a bolt value of 45.26kN. The value of P will be: 5 points



- a. 148 kN
- b. 210 kN
- c. 278 kN
- d. 324 kN

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.