

Unit 4 - Week 3

Course outline

How does an NPTEL online course work?

Week 1

Week 2

Week 3

● L/D ratio of vessel

● Design of Flanges-1.1

○ Design of Flanges-1.2

● Design of Flanges-2.1

○ Design of Flanges-2.2

○ Quiz : Assignment 3

● Solution for Assignment 3

Week 4

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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 2020-02-19, 23:59 IST.

1) Flanges are used to 1 point

- Connect two pipes of equal diameter
 Connect two pipes of unequal diameter
 Both of the above
 Not used for connecting pipes

No, the answer is incorrect. Score: 0

Accepted Answers: *Connect two pipes of equal diameter*

2) Maximum stress can be sustained by 1 point

- Lap-joint flange
 Screwed flange
 Welding-neck flange
 All are equally strong

No, the answer is incorrect. Score: 0

Accepted Answers: *Welding-neck flange*

3) Which flange can sustain minimum vibrations? 1 point

- Lap-joint flange
 Slip on flange
 Both A and B
 None of the above

No, the answer is incorrect. Score: 0

Accepted Answers: *Slip on flange*

4) Blow out of gasket does not occur in 1 point

- Ring type face
 Tongue and groove face
 Both of the above
 Raised face

No, the answer is incorrect. Score: 0

Accepted Answers: *Both of the above*

5) Placement of gasket does not change in 1 point

- Male and female type face
 Tongue and groove type face
 Both of the above
 None of the above

No, the answer is incorrect. Score: 0

Accepted Answers: *Tongue and groove type face*

6) Minimum seating stress is applicable in 1 point

- When pressure vessel is being operated
 When pressure vessel is not being operated
 Both of the above
 None of the above

No, the answer is incorrect. Score: 0

Accepted Answers: *Both of the above*

7) Minimum seating stress (y) and gasket factor (m) are related as 1 point

- $y > m$
 $y < m$
 $y = m$
 These are not related

No, the answer is incorrect. Score: 0

Accepted Answers: *$y > m$*

8) If gasket width is 17mm, then gasket thickness should be 1 point

- 3
 4
 5
 None of the above

No, the answer is incorrect. Score: 0

Accepted Answers: *3*

9) Actual number of bolts in flange can be 1 point

- 20
 25
 30
 None of the above

No, the answer is incorrect. Score: 0

Accepted Answers: *20*

10) For heat exchanger, optimum L/D ratio depends on 1 point

- Area of shell
 Area of head
 Number of tubes
 All of the above

No, the answer is incorrect. Score: 0

Accepted Answers: *All of the above*

11) A loose ring-type flange with plain face is used to join two parts of shell having OD as 0.9 m. Design this flange for following specifications: 3 points

Design pressure (g)=2.5 MN/m²; Allowable stress of shell and flange material=120 MN/m²; Allowable stress of bolting material at atmospheric temperature=130 MN/m²; Allowable stress of bolting material at design temperature=110 MN/m²; Gasket material: soft aluminum corrugated metal; Ratio of gasket internal dia. to Shell outside dia.=1.02; Corrosion allowance=0; Weld joint efficiency factor=1; $g_o=0.015m$; $g_1=1.415 g_o$, $m=0.3$. Calculate effective gasket seating width.

- 14.4mm
 10.35mm
 6.3mm
 None of the above

No, the answer is incorrect. Score: 0

Accepted Answers: *10.35mm*

12) For question No. 11, calculate minimum bolting area? 3 points

- 0.0725 m²
 0.1192 m²
 0.0206 m²
 None of the above

No, the answer is incorrect. Score: 0

Accepted Answers: *0.0206 m²*

13) For question No. 11, which is the suitable bolt for the flange: M 30x2, M 33x2, M 22x2, M 27x2? 3 points

- M 30x2
 M 33x2
 M 22x2
 M 27x2

No, the answer is incorrect. Score: 0

Accepted Answers: *M 27x2*

14) For question No. 11, compute bolt circle diameter? 3 points

- 2.1181m
 1.0185m
 2.7182m
 None of the above

No, the answer is incorrect. Score: 0

Accepted Answers: *1.0185m*

15) For question No. 11, compute flange outside diameter? 3 points

- 1.065m
 4.367m
 2.225m
 None of the above

No, the answer is incorrect. Score: 0

Accepted Answers: *1.065m*