

Unit 2 - Week 1

Course outline

How does an NPTEL online course work?

Week 1

- Introduction
- Stress and Strain Relationship-1
- Stress and Strain Relationship-2
- Terminologies
- Design of shell
- IS 2825-1969 code

Quiz : Assignment 1

- Solution for Assignment 1

Week 2

Week 3

Week 4

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Assignment 1

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

Due on 2020-02-12, 23:59 IST.

- 1) Which parameter is required for mechanical design of equipment? 1 point
 - Material of construction
 - Operating temperature
 - Operating pressure
 - All of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
All of the above
- 2) Which amongst the following is not a pressure vessel? 1 point
 - Steam supply line
 - Distillation column
 - Storage tank
 - None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Storage tank
- 3) Which amongst the following is pressure vessel? 1 point
 - Heat exchanger
 - Separator
 - Reactor
 - All of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
All of the above
- 4) IS: 2825-1969 is applicable for design of pressure vessel, if 2 points
 - Vessel is operated at 29MN/m²
 - Vessel is operated at 19MN/m²
 - Both of the above
 - None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Vessel is operated at 19MN/m²
- 5) When compressive stress is applied, strain generated is 1 point
 - Negative
 - Positive
 - neither A nor B
 - None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Negative
- 6) Strain generated in rings during gymnastic is 1 point
 - Negative
 - Positive
 - neither A nor B
 - None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Positive
- 7) If stress and strain follow linear law 1 point
 - Elastic modulus is applicable
 - Poison's ratio is applicable
 - Neither A nor B
 - None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Elastic modulus is applicable
- 8) Maximum Poison's ratio is for 2 points
 - Iron
 - Nickel
 - Steel
 - Aluminium

No, the answer is incorrect.
Score: 0
Accepted Answers:
Nickel
- 9) A thin cylindrical shell having 2.5m inner diameter and 10m length is being operated at 2MN/m² (g) pressure. Compute the thickness of shell if allowable stress of material is 300MN/m² 5 points
 - 0.0044m
 - 0.0066m
 - 0.0088m
 - None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.0088m
- 10) Which statement is true? 2 points
 - Allowable stress is greater than maximum permissible stress
 - Allowable stress is greater than damaging stress
 - Both of the above
 - None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Allowable stress is greater than maximum permissible stress
- 11) If the unheated vessel is used to store a liquid at 300°C, what should be the design temperature? 2 points
 - Greater than 300°C
 - Lesser than 300°C
 - Equal to 300°C
 - None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Equal to 300°C
- 12) If thickness of the shell is greater than 30mm, corrosion allowance is 2 points
 - 3mm
 - 1.5mm
 - 0 mm
 - None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
0 mm
- 13) Lame's analysis is used for shell design of vessel when it is operated with 1 point
 - Internal pressure
 - External pressure
 - Both of the above
 - None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Internal pressure
- 14) Design of shell for internal pressure is controlled by 2 points
 - Longitudinal stress
 - Radial stress
 - Tangential stress
 - None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Tangential stress
- 15) A pressure vessel with outer diameter of 3.8 and length of 20m is to be operated at maximum working pressure of 2 MN/m² (g). The vessel is made of IS 2002-1962 Grade 2B and its design temperature is 375°C. Corrosion allowance is 2mm. It is Class 1 vessel having single welded butt joint with backing strip is used. Determine the thickness of shell. 6 points
 - 63 mm
 - 50 mm
 - 40 mm
 - None of the above

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