

Unit 13 - Week 11

Course outline
How does an NPTEL online course work?
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Week 11
<input type="radio"/> Lecture 28: Forms of corrosion: Fretting corrosion
<input type="radio"/> Lecture 29: Forms of corrosion: Stress corrosion cracking (Part-I)
<input type="radio"/> Lecture 30: Forms of corrosion: Stress corrosion cracking (Part-II)
<input type="radio"/> Lecture 31: Forms of corrosion: Stress corrosion cracking (Part-III)
<input type="radio"/> Quiz : Assignment 8
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Assignment 8

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

Due on 2020-12-09, 23:59 IST.

INSTRUCTIONS:

- (A) The marks that each question carries is marked against the question.
(B) There can be more than one correct answers for a question.

1) Stress corrosion cracking is the result of

2 points

- Extensive corrosion of metals
 Passivity of metal
 Tensile stress in metals
 Compressive stress in metals
 Simultaneous action of stress and environments

No, the answer is incorrect.
Score: 0

Accepted Answers:
Passivity of metal
Tensile stress in metals
Compressive stress in metals

2) Stress corrosion cracking causes

3 points

- Brittle fracture
 Extensive loss of metal due to corrosion
 Ductile failure of metals
 Loss in elongation of metals
 Compressively loaded structures

No, the answer is incorrect.
Score: 0

Accepted Answers:
Brittle fracture
Ductile failure of metals
Loss in elongation of metals

3) Stress corrosion cracking does not affect

2 points

- Crack growth rate of metal
 Fracture toughness of metals
 The apparent dimensions of metallic structures
 Ultimate tensile strength of metals

No, the answer is incorrect.
Score: 0

Accepted Answers:
The apparent dimensions of metallic structures

4) In chloride medium the following alloys are susceptible to stress corrosion cracking

2 points

- 304L SS
 304 SS
 410 SS
 Peak aged aluminum alloy
 Alpha brass

No, the answer is incorrect.
Score: 0

Accepted Answers:
304L SS
304 SS
Peak aged aluminum alloy

5) Cathodic protection reduces failure of metals due to

3 points

- Stress corrosion cracking
 Hydrogen embrittlement
 Pitting corrosion
 Fretting damage
 Erosion corrosion

No, the answer is incorrect.
Score: 0

Accepted Answers:
Stress corrosion cracking
Pitting corrosion
Erosion corrosion

6) Electrogalvanized steel is prone to

2 points

- Uniform corrosion
 Hydrogen embrittlement
 Stress corrosion cracking
 Pitting corrosion
 Dealloying

No, the answer is incorrect.
Score: 0

Accepted Answers:
Hydrogen embrittlement

7) High temperature (350 °C) high pressure hydrogen atmosphere cause premature failure of

2 points

- Carbon steel
 304L SS
 410 SS
 90Cu-30Ni alloy
 904L SS

No, the answer is incorrect.
Score: 0

Accepted Answers:
Carbon steel

8) Sulfate reducing bacteria affects metals

2 points

- Because it metabolizes metals
 Sulfate ions are present in the medium
 Hydrogen sulfide is present in the medium
 Conditions are aerobic
 Conditions are anaerobic

No, the answer is incorrect.
Score: 0

Accepted Answers:
Sulfate ions are present in the medium
Conditions are anaerobic

9) Stress corrosion cracking of 304L SS in chloride can be eliminated

2 points

- The applied stress is reduced below yield strength
 Stress intensity factor is lowered below K_{Ic}
 Lowering the temperature
 Applying a compressive stress
 None of the above can eliminate

No, the answer is incorrect.
Score: 0

Accepted Answers:
Lowering the temperature
Applying a compressive stress