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NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » **Fundamentals of Surface Engineering: Mechanisms, Processes and Characterizations (course)**

Announcements (announcements)

About the Course (https://swayam.gov.in/nd1_noc19_me69/preview) Ask a Question (forum)

Progress (student/home) Mentor (student/mentor)

Unit 10 - Week 9

Course outline

How to access the portal

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

- Surface modification techniques: Laser nitriding and developing

Assignment No. 9

The due date for submitting this assignment has passed. Due on 2019-10-02, 23:59 IST. As per our records you have not submitted this assignment.

1) A layer of suitable material can be developed on the substrate for surface modification by **1 point**

- Electrochemical reactions
- Thermal spraying
- Welding
- All of above

No, the answer is incorrect.

Score: 0

Accepted Answers:

All of above

2) Thickness of following modified surface layers in descending order will be **1 point**

- Cladding, coating, films
- Films, coating, cladding
- Films, cladding, coating
- Coating, cladding, films

No, the answer is incorrect.

Score: 0

Accepted Answers:

Cladding, coating, films

surface layer
(unit?
unit=61&lesson=62)

Surface modification techniques: Fundamentals of surface modification by weld surfacing and thermal spraying (unit? unit=61&lesson=63)

Surface modification techniques: Fundamentals of surface modification by weld surfacing (unit? unit=61&lesson=64)

Surface modification techniques: Weld surfacing processes (unit? unit=61&lesson=65)

Surface modification techniques: Weld surfacing I (unit? unit=61&lesson=66)

Quiz : Assignment No. 9 (assessment? name=103)

Solution for Assignment No. 9 (unit? unit=61&lesson=117)

Week 10

Week 11

Week 12

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3) The tendency of delamination of coating material and substrate in thermal spray coating is due **1 point** to

- Strong metallurgical bond between them
- Bond with poor mechanical interlocking
- Poor metallurgical bond
- Both b and c

No, the answer is incorrect.

Score: 0

Accepted Answers:

Both b and c

4) High heat input process for surface modification by weld surfacing of plain carbon steel **1 point** substrate can lead to

- I. Increased dilution from substrate
- II. Fine grain structure
- III. Short cooling time
- IV. Coarse grain structure
- V. Long cooling time

I, II & III

I, IV & V

I, II & IV

I, III & IV

No, the answer is incorrect.

Score: 0

Accepted Answers:

I, IV & V

5) The mechanical performance (hardness) of the modified surface developed using a bead on **1 point** plate (BOP) fusion weld is governed by

- I. Heat input
- II. Dilution ratio
- III. Pre-processing of substrate material
- IV. Cooling time
- V. Surroundings in which welding is performed

I, II, III & V

I, III & V

I & IV

I, II, IV & V

No, the answer is incorrect.

Score: 0

Accepted Answers:

I, II, IV & V

6) Cooling rates in bead on plate welding of carbon steel will affect **1 point**

- Grain size
- Microstructure
- Mechanical properties
- All of above

No, the answer is incorrect.

Score: 0

Accepted Answers:

All of above

- 7) In oxy-fuel gas weld surfacing, the maximum temperature offered when fuel used **1 point**
- Acetylene
 - Propene
 - Butane
 - Temperature will be same irrespective of fuel gas
- No, the answer is incorrect.
Score: 0
Accepted Answers:
Acetylene
- 8) Loss of alloying elements through oxide formation in gas weld surfacing takes place when **1 point**
- More acetylene and less oxygen is used
 - More oxygen and less acetylene is used
 - Equal proportion of oxygen and acetylene are used
 - Oxidation is not possible
- No, the answer is incorrect.
Score: 0
Accepted Answers:
More oxygen and less acetylene is used
- 9) SMAW process can be used for **1 point**
- I. Cladding
 - II. Nitriding
 - III. Electroless plating
 - IV. Hardfacing
 - V. Buttering
- I, II & III
 - I, IV & V
 - Only I
 - IV & V
- No, the answer is incorrect.
Score: 0
Accepted Answers:
I, IV & V
- 10) The features associated with submerged arc welding based surfacing techniques are **1 point**
- I. Large surface area
 - II. A non-consumable electrode
 - III. High dilution rates
 - IV. High heat input
 - V. Argon as shielding gas
- I, III & V
 - I, III & IV
 - I, IV & V
 - I, II, III & IV
- No, the answer is incorrect.
Score: 0
Accepted Answers:
I, III & IV

